



iSeries

WebSphere® Development Studio: ILE COBOL Reference Summary

Version 5

SX09-1317-03





iSeries

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ILE COBOL Reference Summary

Version 5

SX09-1317-03

Note!

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 129.

Fourth Edition (August 2002)

This edition applies to Version 5, Release 2, Modification Level 0, of IBM WebSphere Development Studio for iSeries (5722-WDS), ILE COBOL compiler, and to all subsequent releases and modifications until otherwise indicated in new editions.

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About This Summary

This summary contains all the COBOL statements and related information you may need to refer to when programming in the Integrated Language Environment (ILE) COBOL language.

Before using this summary, you should have a basic understanding of the ILE COBOL language and of the Operating System/400® (OS/400) operating system Control Language (CL).

Who Should Use This Summary

This publication is for programmers familiar with the COBOL language. The purpose of this publication is to summarize the formats of the COBOL language as it is used on the ILE COBOL compiler.

In order to use this summary effectively, you should be familiar with the *WebSphere Development Studio: ILE COBOL Programmer's Guide* and the *WebSphere Development Studio: ILE COBOL Reference*. If you need reference information for the Control Language, see the *CL and APIs* section of the *Programming* category in the **iSeries 400 Information Center**. You should also be familiar with data management concepts, which are described in the *Database and File Systems* category in the **iSeries 400 Information Center**. The **Information Center** is located at <http://www.ibm.com/eserver/series/infocenter>.

Prerequisite and Related Information

Use the iSeries Information Center as your starting point for looking up iSeries and AS/400e technical information. You can access the Information Center in two ways:

- From the following Web site:
<http://www.ibm.com/eserver/series/infocenter>
- From CD-ROMs that ship with your Operating System/400 order:
iSeries Information Center, SK3T-4091-02. This package also includes the PDF versions of iSeries manuals, *iSeries Information Center: Supplemental Manuals*, SK3T-4092-01, which replaces the Softcopy Library CD-ROM.

The iSeries Information Center contains advisors and important topics such as CL commands, system application programming interfaces (APIs), logical partitions, clustering, Java™, TCP/IP, Web serving, and secured networks. It also includes links to related IBM® Redbooks and Internet links to other IBM Web sites such as the Technical Studio and the IBM home page.

ILE COBOL Syntax Notation

ILE COBOL basic formats are presented in a uniform system of syntax notation. This notation, designed to assist you in writing COBOL source statements, is explained in the following paragraphs:

- COBOL keywords and optional words appear in uppercase letters; for example:
MOVE

They must be spelled exactly as shown. If any keyword is missing, the compiler considers it as an error.

- Variables representing user-supplied names or values appear in all lowercase italic letters; for example:

parmx

- For easier text reference, some words are followed by a hyphen and a digit or a letter, as in:

identifier-1

This suffix does not change the syntactical definition of the word.

- If punctuation marks, parentheses, arithmetic operators, logical operators, or such symbols are shown, they must be entered as part of the syntax.
- Arithmetic and logical operators (+, -, *, /, **, >, <, =, ≥, and ≤) are *special character* reserved words. For a complete listing of reserved ILE COBOL words, see Chapter 13, “ILE COBOL Reserved Word List” on page 123.

How to Read the Syntax Diagrams

Throughout this book, syntax is described using the structured defined below.

- Read the syntax diagrams from left to right, from top to bottom, following the path of the line:

- ▶▶— indicates the beginning of a statement.
- indicates that the statement syntax is continued on the next line.
- ▶— indicates that a statement is continued from the previous line.
- ▶▶ indicates the end of a statement.

Diagrams of syntactical units other than statements, such as clauses, phrases, and paragraphs, also start with the ▶▶— symbol and end with the —▶▶ symbol.

Note: Statements within a diagram of an entire paragraph will not start with ▶▶— and end with —▶▶ unless their beginning or ending coincides with that of the paragraph.

- Required items appear on the horizontal line (the main path).

▶▶—STATEMENT—*required item*—▶▶

- Optional items appear below the main path.

▶▶—STATEMENT—
└—*optional item*—┘—▶▶

- When you can choose from two or more items, they appear vertically, in a stack. If you must choose one of the items, one item of the stack appears on the main path.

▶▶—STATEMENT—
└—*required-choice-1*—┘
└—*required-choice-2*—┘—▶▶

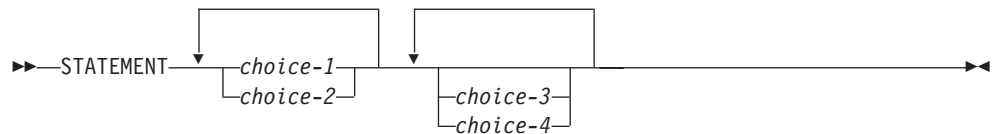
If choosing one of the items is optional, the entire stack appears below the main path.



- An arrow returning to the left above an item indicates that the item can be repeated.



A repeat arrow above a stack of required or optional choices indicates that you can make more than one choice from the stacked items, or repeat a single choice.



- A syntax fragment is delimited in the main syntax diagram by a set of vertical lines. The corresponding definition of the fragment begins with the name of the fragment followed by the syntax, which starts and ends with a vertical line.

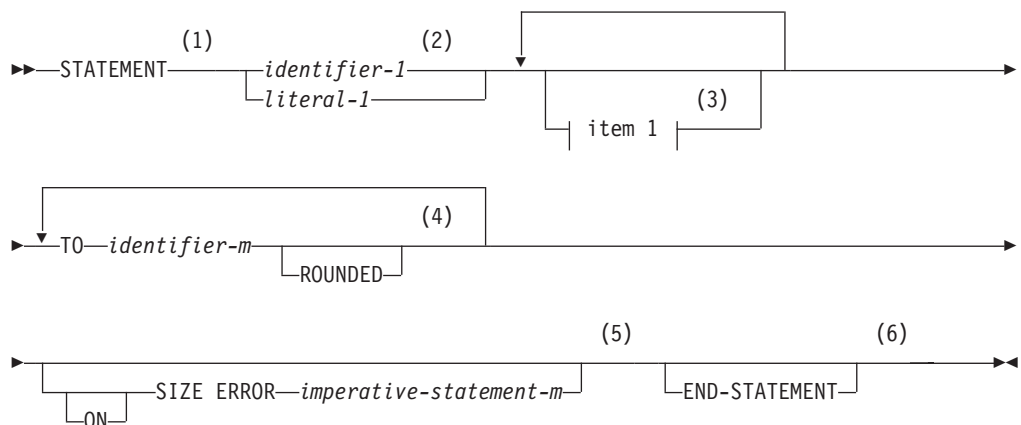


fragment:



The following example shows how the syntax is used:

Format



item 1:



Notes:

- 1 The STATEMENT key word must be specified and coded as shown.
- 2 This operand is required. Either identifier-1 or literal-1 must be coded.
- 3 The item 1 fragment is optional; it can be coded or not, as required by the application. If item 1 is coded, it can be repeated with each entry separated by one or more COBOL separators. Entry selections allowed for this fragment are described at the bottom of the diagram.
- 4 The operand identifier-m and associated TO key word are required and can be repeated with one or more COBOL separators separating each entry. Each entry can be assigned the key word ROUNDED.
- 5 The ON SIZE ERROR phrase with associated imperative-statement-m are optional. If the ON SIZE ERROR phrase is coded, the key word ON is optional.
- 6 The END-STATEMENT key word can be coded to end the statement. It is not a required delimiter.

IBM Extensions

An IBM extension generally modifies a rule or restriction that immediately precedes it. The standard is presented first, because some programmers use the ILE COBOL language without IBM extensions. The extensions are then presented for those who **do** use them.

Clauses and statements illustrated within syntax diagrams that are ILE COBOL language extensions to the American National Standards Institute (ANSI) standard *X3.23b-1993, American National Standard for Information Systems - Programming Language - COBOL* are identified by footnotes.

IBM Extension

ILE COBOL language extensions to ANSI X3.23b-1993 COBOL that are part of the text description are enclosed in IBM Extension bars, like this paragraph.

End of IBM Extension

Documentary Syntax

Some COBOL clauses and statements are syntax checked and treated as documentation by the ILE COBOL compiler. Such clauses and statements are identified with a footnote in syntax diagrams.

CL Entry Codes

The code that appears in the upper right corner of each CL syntax diagram contains the entry codes that specify the environment in which the command can be entered. The codes indicate whether or not the command can be:

- Used in a batch or interactive job (outside a compiled program; Job:B or I)
- Used in a batch or interactive compiled program (Pgm:B or I)

- Used in a batch or interactive REXX procedure (REXX:B or I)
- Used as a parameter for the CALL CL command, or passed as a character string to the system program QCMDEXC (Exec).

Industry Standard

Standard COBOL refers to the COBOL programming language as defined in the document entitled American National Standard for Information Systems - Programming Language - COBOL, ANSI X3.23-1985, ISO 1989:1985, updated with the content of the following documents, in the order they are listed:

- ANSI X3.23a-1989, American National Standard for Information Systems - Programming Language - Intrinsic Function Module for COBOL and ISO 1989:1985/ Amd.1:1992
- Programming Languages - COBOL, AMENDMENT 1: Intrinsic function module
- ANSI X3.23b-1993, American National Standard for Information Systems - Programming Language - Correction Amendment for COBOL
- ISO/IEC 1989 DAM2 Programming Languages - COBOL, AMENDMENT 2: Correction and clarification amendment for COBOL.

From this point on, the term Standard COBOL will be used to refer to the ANSI standard just described.

Chapter 1. Creating Module and Program Objects

Use the CRTCBMOD (Create COBOL Module) command to create one or more module objects from ILE COBOL source members. Use the CRTPGM (Create Program) command to bind the module objects created by the CRTCBMOD command into one or more program objects.

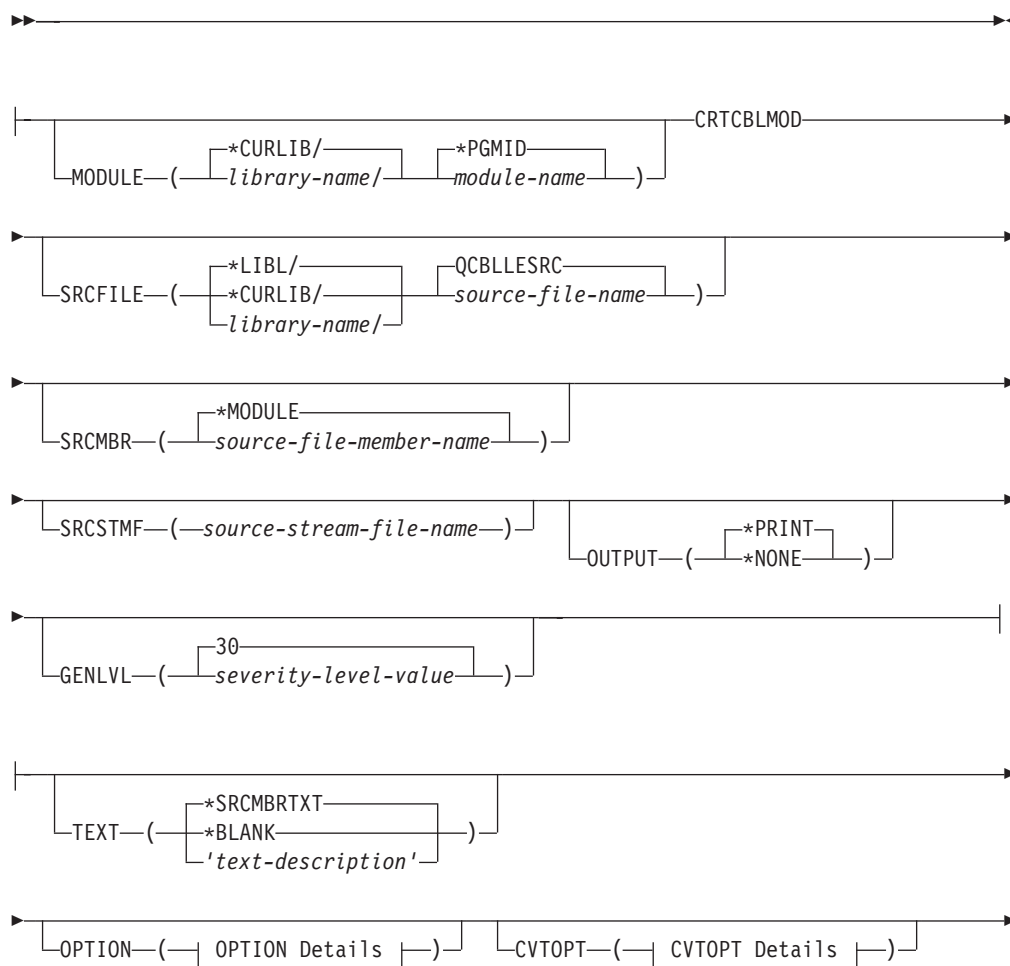
Use the CRTBNDCBL (Create Bound COBOL) command to create one or more program objects directly from ILE COBOL source members.

You can use the PROCESS statement in your source member to override the options specified for the CRTCBMOD or CRTBNDCBL command. The options of the PROCESS statement are covered in “PROCESS Statement” on page 7.

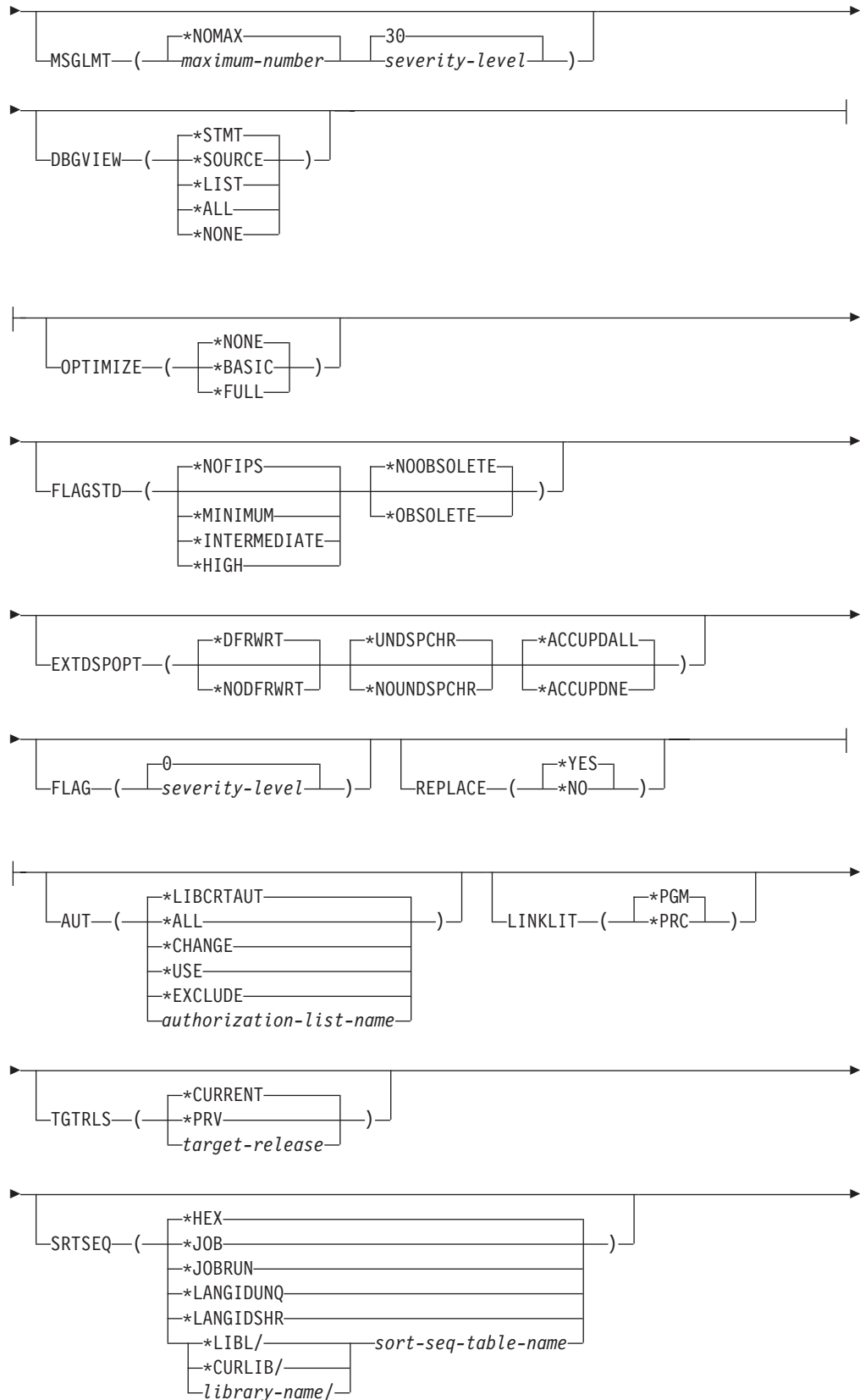
CRTCBLMOD Command Syntax

The following diagram shows the syntax of the CRTCLMOD command:

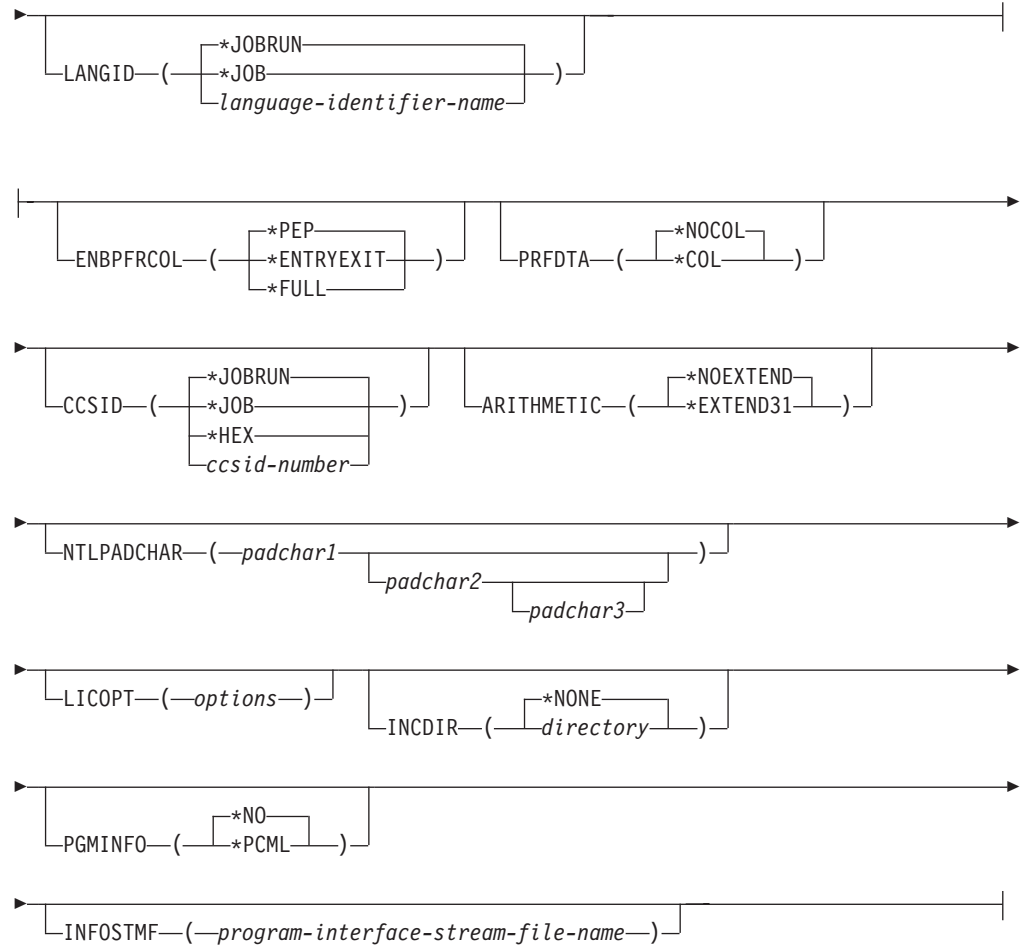
CRTCBLMOD Command—Format



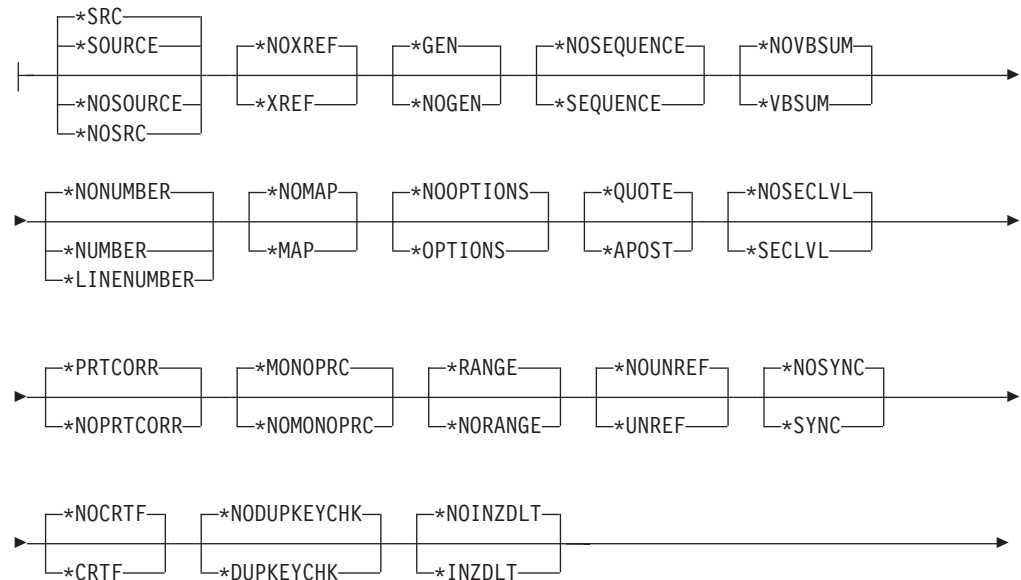
Creating Module and Program Objects



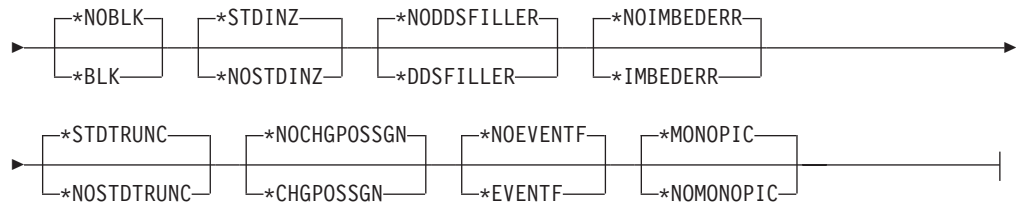
Creating Module and Program Objects



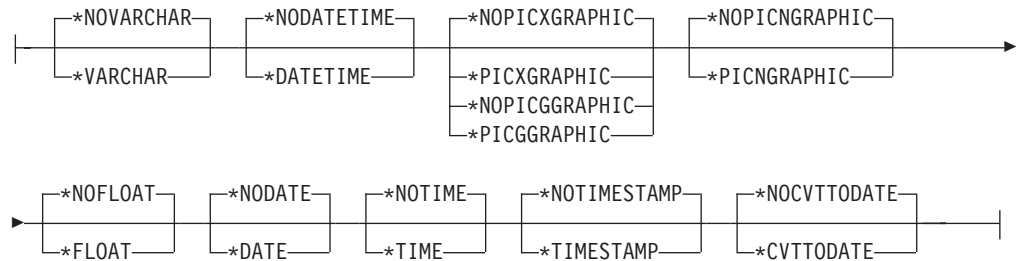
OPTION Details:



Creating Module and Program Objects



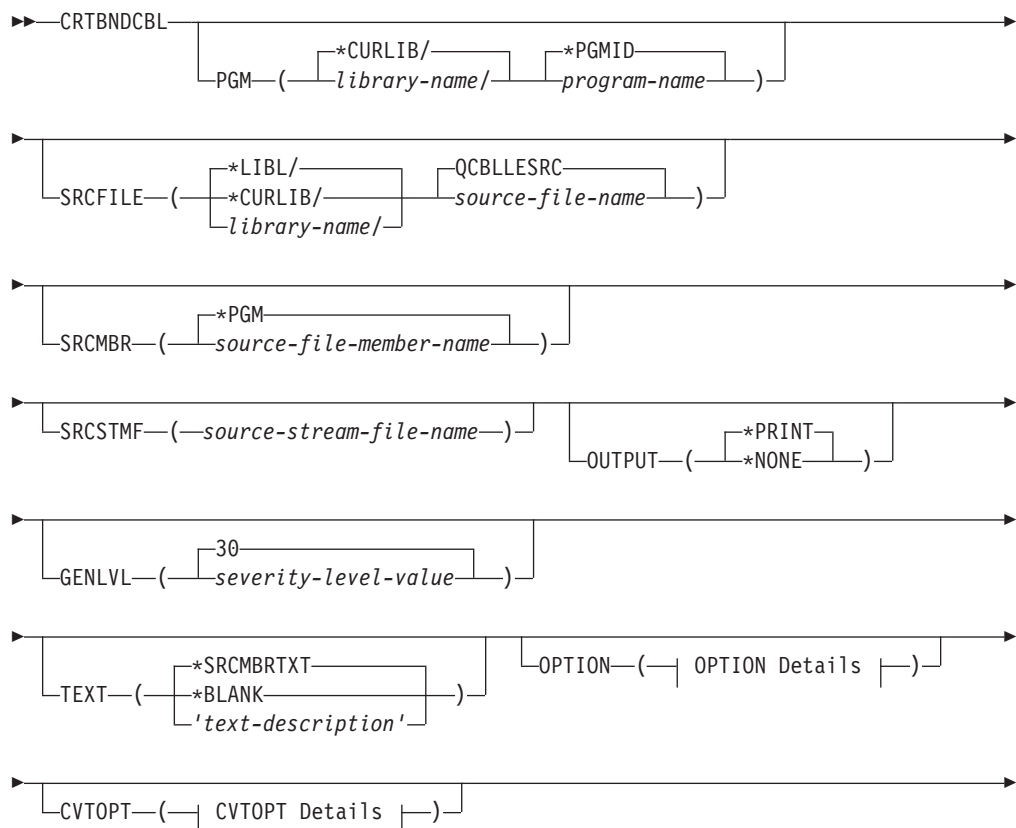
CVTOPT Details:



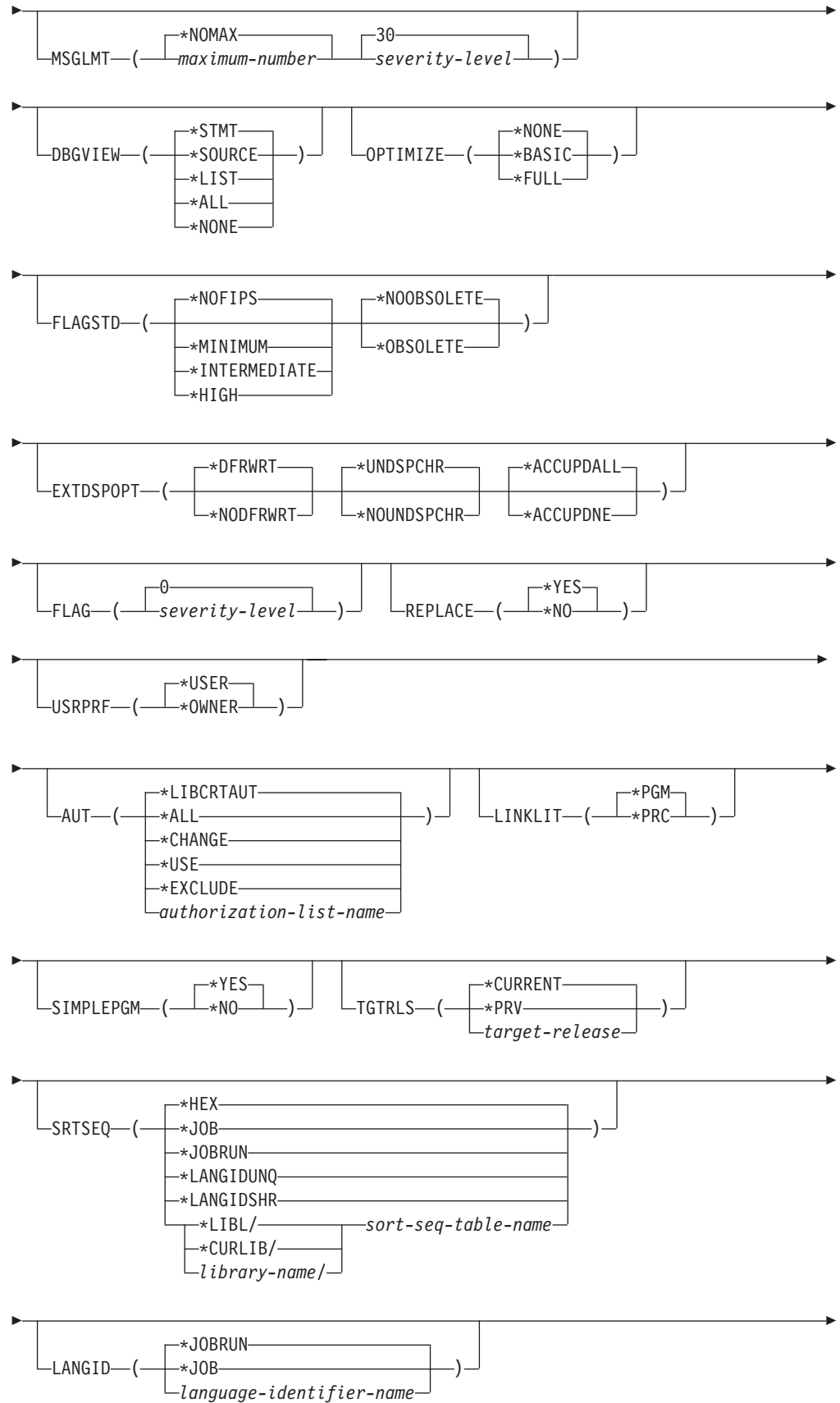
CRTBNDCBL Command Syntax

The following diagram shows the syntax of the CRTBNDCBL command:

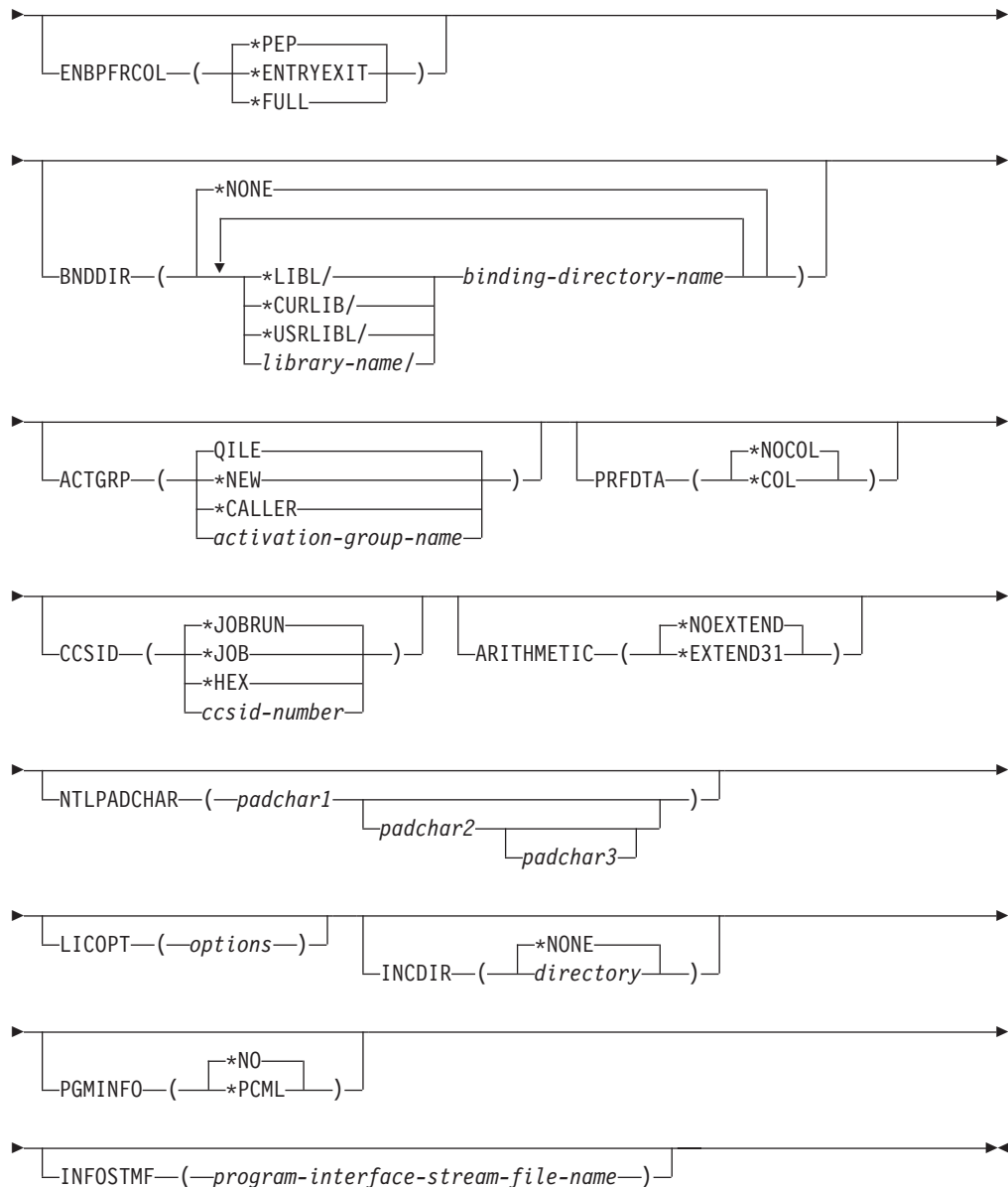
CRTBNDCBL Command - Format



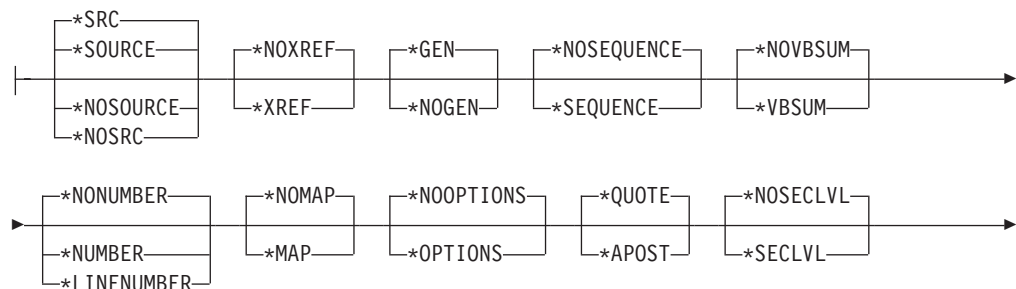
Creating Module and Program Objects



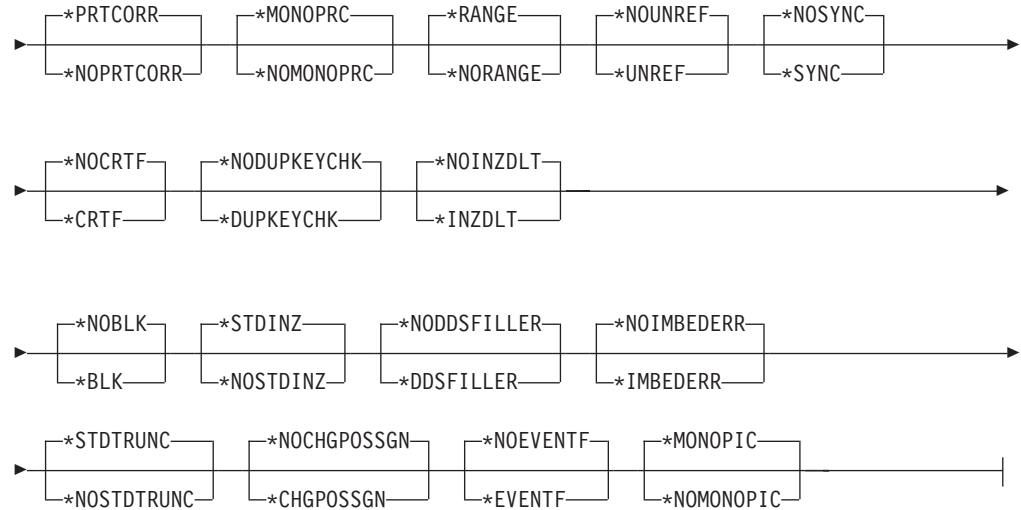
Creating Module and Program Objects



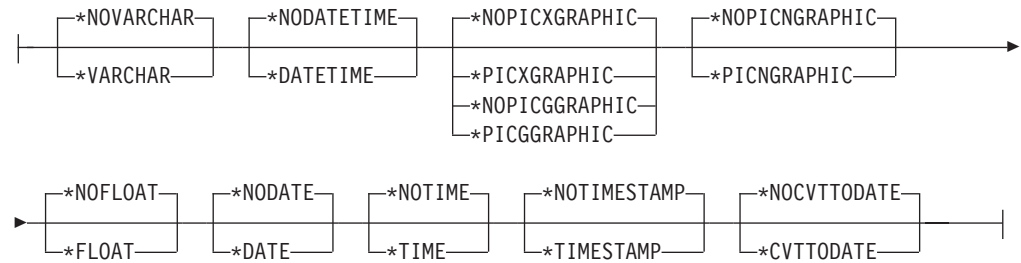
OPTION Details:



Creating Module and Program Objects



CVTOPT Details:



PROCESS Statement

The syntax of the PROCESS statement is:



PROCESS Statement Options	CRTCBMOD/CRTBNDCBL
	OUTPUT Parameter Options
<u>OUTPUT</u> NOOUTPUT	*PRINT *NONE

PROCESS Statement Option	CRTCBMOD/CRTBNDCBL
	GENLVL Parameter Option
GENLVL(nn)	nn

Creating Module and Program Objects

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	OPTION Parameter Options
<u>SOURCE</u> SRC NOSOURCE NOSRC	* <u>SOURCE</u> *SRC *NOSOURCE *NOSRC
<u>NOXREF</u> XREF	* <u>NOXREF</u> *XREF
<u>GEN</u> NOGEN	* <u>GEN</u> *NOGEN
<u>NOSEQUENCE</u> SEQUENCE	* <u>NOSEQUENCE</u> *SEQUENCE
<u>NOVBSUM</u> VBSUM	* <u>NOVBSUM</u> *VBSUM
<u>NONUMBER</u> NUMBER LINENUMBER	* <u>NONUMBER</u> *NUMBER *LINENUMBER
<u>NOMAP</u> MAP	* <u>NOMAP</u> *MAP
<u>NOOPTIONS</u> OPTIONS	* <u>NOOPTIONS</u> *OPTIONS
<u>QUOTE</u> APOST	* <u>QUOTE</u> *APOST
<u>NOSECLVL</u> SECLVL	* <u>NOSECLVL</u> *SECLVL
<u>PRTCORR</u> NOPRTCORR	* <u>PRTCORR</u> *NOPRTCORR
<u>MONOPRC</u> NOMONOPRC	* <u>MONOPRC</u> *NOMONOPRC
<u>RANGE</u> NORANGE	* <u>RANGE</u> *NORANGE
<u>NOUNREF</u> UNREF	* <u>NOUNREF</u> *UNREF
<u>NOSYNC</u> SYNC	* <u>NOSYNC</u> *SYNC
<u>NOCRTE</u> CRTE	* <u>NOCRTE</u> *CRTE
<u>NODUPKEYCHK</u> DUPKEYCHK	* <u>NODUPKEYCHK</u> *DUPKEYCHK
<u>NOINZDLT</u> INZDLT	* <u>NOINZDLT</u> *INZDLT
<u>NOBLK</u> BLK	* <u>NOBLK</u> *BLK
<u>STDINZ</u> NOSTDINZ	* <u>STDINZ</u> *NOSTDINZ
<u>NODDSFILLER</u> DDSFILLER	* <u>NODDSFILLER</u> *DDSFILLER
Not applicable	* <u>NOIMBEDERR</u> *IMBEDERR

Creating Module and Program Objects

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	OPTION Parameter Options
<u>STDTRUNC</u> NOSTDTRUNC	* <u>STDTRUNC</u> *NOSTDTRUNC
<u>CHGPOSSGN</u> NOCHGPOSSGN	* <u>CHGPOSSGN</u> *NOCHGPOSSGN
Not applicable	* <u>NOEVENTF</u> *EVENTF
<u>MONOPIC</u> NOMONOPIC	* <u>MONOPIC</u> *NOMONOPIC

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	CVTOPT Parameter Options
<u>NOVARCHAR</u> VARCHAR	* <u>NOVARCHAR</u> *VARCHAR
<u>NODATETIME</u> DATETIME	* <u>NODATETIME</u> *DATETIME
<u>NOCVPICXGRAPHIC</u> CVTPICXGRAPHIC CVTPICGGRAPHIC NOCVPICGGRAPHIC	* <u>NOPICXGRAPHIC</u> *PICXGRAPHIC *PICGGRAPHIC *NOPICGGRAPHIC
<u>NOCVPICNGRAPHIC</u> CVTPICNGRAPHIC	* <u>NOPICNGRAPHIC</u> *PICNGRAPHIC
<u>NOFLOAT</u> FLOAT	* <u>NOFLOAT</u> *FLOAT
<u>NODATE</u> DATE	* <u>NODATE</u> *DATE
<u>NOTIME</u> TIME	* <u>NOTIME</u> *TIME
<u>NOTIMESTAMP</u> TIMESTAMP	* <u>NOTIMESTAMP</u> *TIMESTAMP
<u>NOCVTTODATE</u> CVTTODATE	* <u>NOCVTTODATE</u> *CVTTODATE

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	OPTIMIZE Parameter Options
<u>NOOPTIMIZE</u> BASICOPT FULLOPT	* <u>NONE</u> *BASIC *FULL

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	FLAGSTD Parameter Options
<u>NOFIPS</u> MINIMUM INTERMEDIATE HIGH	* <u>NOFIPS</u> *MINIMUM *INTERMEDIATE *HIGH
<u>NOOBSOLETE</u> OBSOLETE	* <u>NOOBSOLETE</u> *OBSOLETE

Creating Module and Program Objects

PROCESS Statement Options EXTDSPOPT(<i>a b c</i>)	CRTCBLMOD/CRTBNDCBL
	EXTDSPOPT Parameter Options
<u>DFRWRT</u> NODFRWRT	* <u>DFRWRT</u> *NODFRWRT
<u>UNDSPCHR</u> NOUNDSPCHR	* <u>UNDSPCHR</u> *NOUNDSPCHR
<u>ACCUPDALL</u> ACCUPDNE	* <u>ACCUPDALL</u> *ACCUPDNE

PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
	FLAG Parameter Option
FLAG(nn)	nn

PROCESS Statement Options	CRTCBLMOD/CRTBNDCBL
	LINKLIT Parameter Options
<u>LINKPGM</u> LINKPRC	* <u>PGM</u> *PRC

PROCESS Statement Options SRTSEQ(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
	SRTSEQ Parameter Options
<u>HEX</u> JOB JOBRUN LANGIDUNQ LANGIDSHR "LIBL/sort-seq-table-name" "CURLIB/sort-seq-table-name" "library-name/sort-seq-table-name" "sort-seq-table-name"	* <u>HEX</u> *JOB *JOBRUN *LANGIDUNQ *LANGIDSHR *LIBL/sort-seq-table-name *CURLIB/sort-seq-table-name library-name/sort-seq-table-name sort-seq-table-name

PROCESS Statement Options LANGID(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
	LANGID Parameter Options
<u>JOBRUN</u> JOB "language-identifier-name"	* <u>JOBRUN</u> *JOB language-identifier-name

PROCESS Statement Options ENBPFCOL(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
	ENBPFCOL Parameter Options
<u>PEP</u> ENTRYEXIT FULL	* <u>PEP</u> *ENTRYEXIT *FULL

PROCESS Statement Options PRFDTA(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
	PRFDTA Parameter Options
<u>NOCOL</u> COL	* <u>NOCOL</u> *COL

Creating Module and Program Objects

PROCESS Statement Options CCSID(<i>a b c</i>)		CRTCBLMOD/CRTBNDCBL
		CCSID Parameter Options
<i>a</i> = Locale single-byte data CCSID		
<u>JOBRUN</u> JOB HEX <i>coded-character-set-identifier</i>		<u>*JOBRUN</u> *JOB *HEX <i>coded-character-set-identifier</i>
<i>b</i> = Non-locale single-byte data CCSID		
<u>JOBRUN</u> JOB HEX <i>coded-character-set-identifier</i>		Not applicable
<i>c</i> = Non-locale double-byte data CCSID		
<u>JOBRUN</u> JOB HEX <i>coded-character-set-identifier</i>		Not applicable

PROCESS Statement Options DATTIM(<i>a b</i>)	CRTCBLMOD/CRTBNDCBL
<i>4-digit base century</i> (default 1900) <i>2-digit base year</i> (default 40)	Not applicable

PROCESS Statement Options THREAD(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
<u>NOTHREAD</u> SERIALIZE	Not applicable

PROCESS Statement Options ARITHMETIC(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
	ARITHMETIC Parameter Options
<u>NOEXTEND</u> EXTEND31	<u>*NOEXTEND</u> *EXTEND31

PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
<u>NOGRAPHIC</u> GRAPHIC	Not applicable

PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
<u>NONATIONAL</u> NATIONAL	Not applicable

PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
<u>NOLSPTRALIGN</u> LSPTRALIGN	Not applicable

PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
<u>NOCOMPASBIN</u> COMPASBIN	Not applicable

Creating Module and Program Objects

PROCESS Statement Option OPTVALUE(<i>a</i>)	CRTCBLMOD/CRTBNDCBL
<u>NOOPT</u> OPT	Not applicable

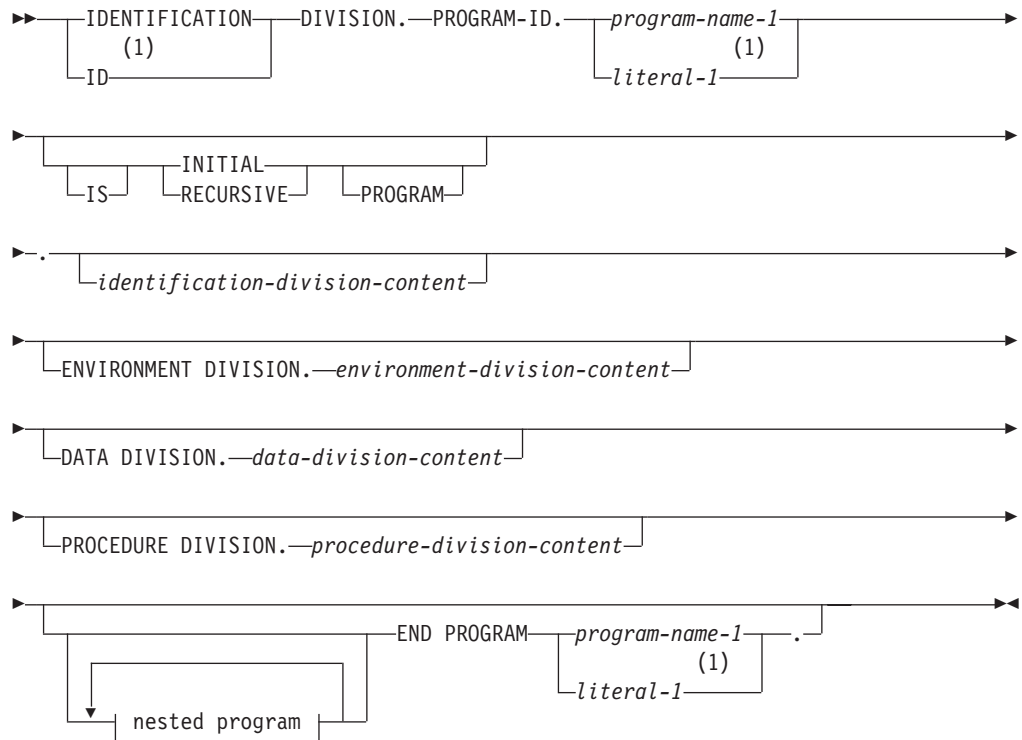
PROCESS Statement Option	CRTCBLMOD/CRTBNDCBL
<u>NOADJFILLER</u> ADJFILLER	Not applicable

PROCESS Statement Option NTLPADCHAR(<i>a b c</i>)	CRTCBLMOD/CRTBNDCBL NTLPADCHAR Parameter Options
<i>a</i> = padding character for moving single-byte to national	
<u>NX"0020"</u> a national hexadecimal literal representing one national character	<u>NX"0020"</u> a national character
<i>b</i> = padding character for moving double-byte to national	
<u>NX"3000"</u> a national hexadecimal literal representing one national character	<u>NX"3000"</u> a national character
<i>c</i> = padding character for moving national to national	
<u>NX"3000"</u> a national hexadecimal literal representing one national character	<u>NX"3000"</u> a national character

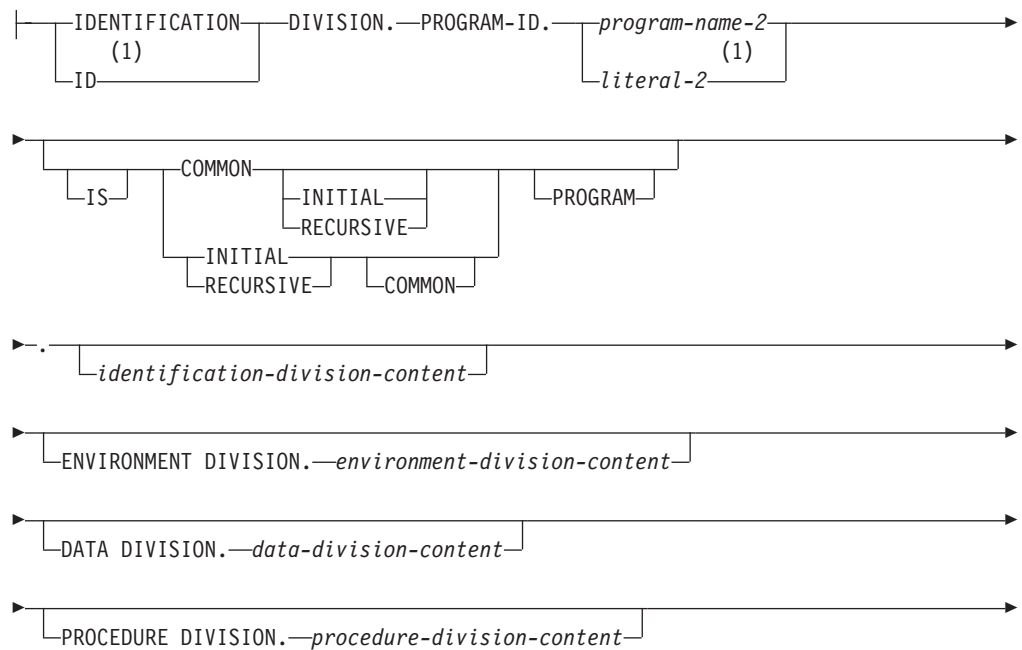
PROCESS Statement Option LICOPT(<i>a</i>)	CRTCBLMOD/CRTBNDCBL LICOPT Parameter Option
licensed-internal-code-option-string	licensed-internal-code-option-string

Chapter 2. COBOL Source Program—General Structure

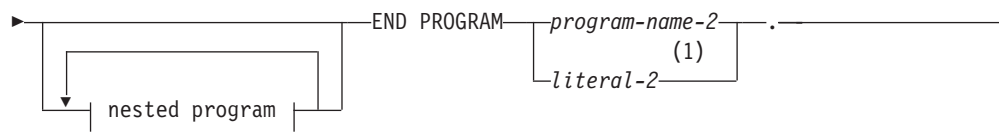
COBOL Source Program—Format



nested program:



COBOL Source Program—General Structure

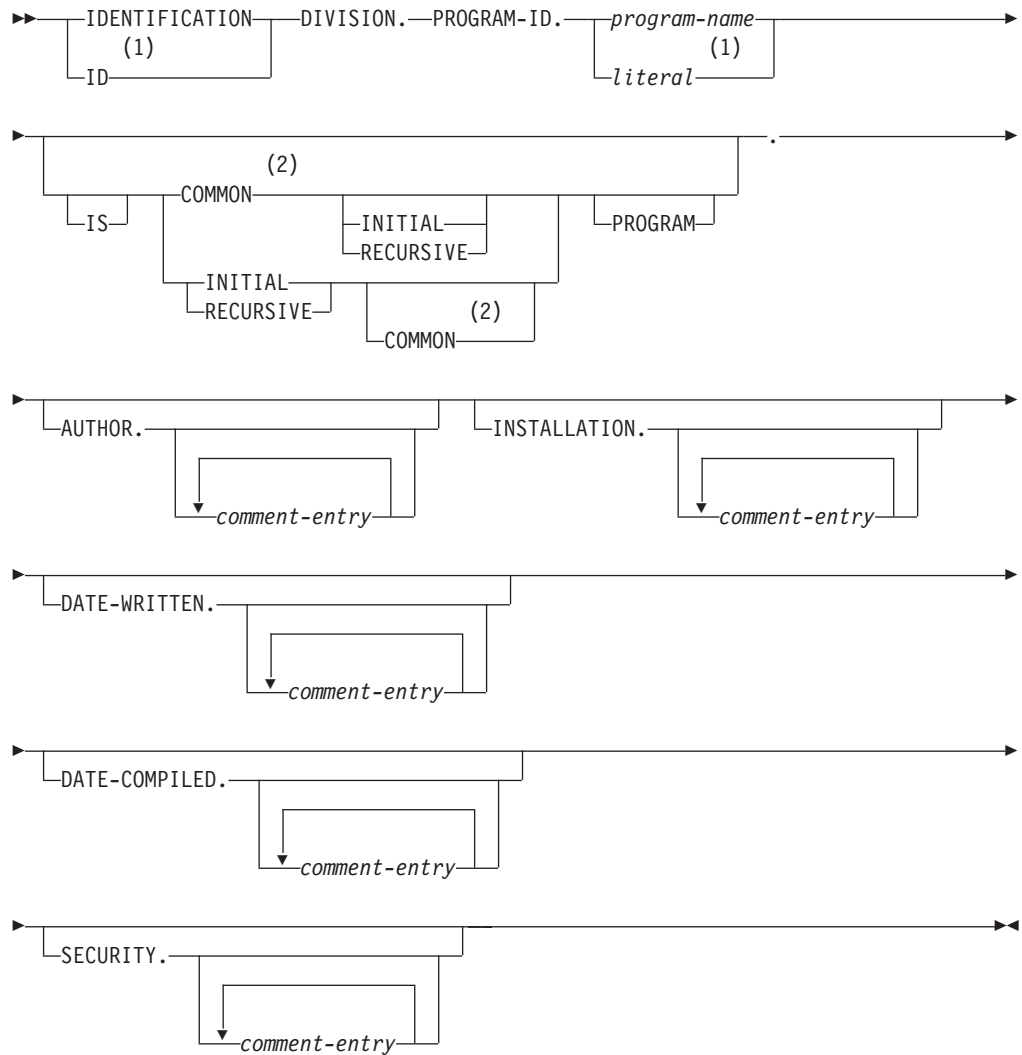


Notes:

- 1 IBM Extension

Chapter 3. Identification Division

Identification Division - Format



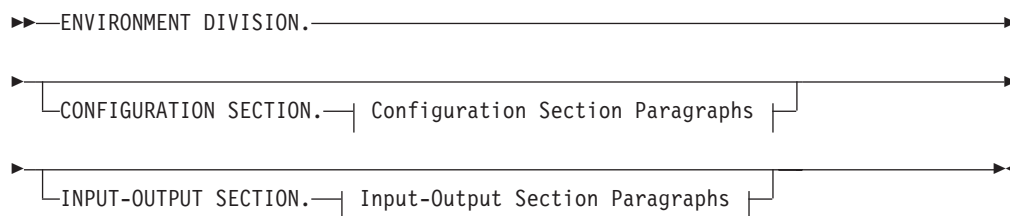
Notes:

- 1 IBM Extension
- 2 Allowed only for nested COBOL programs

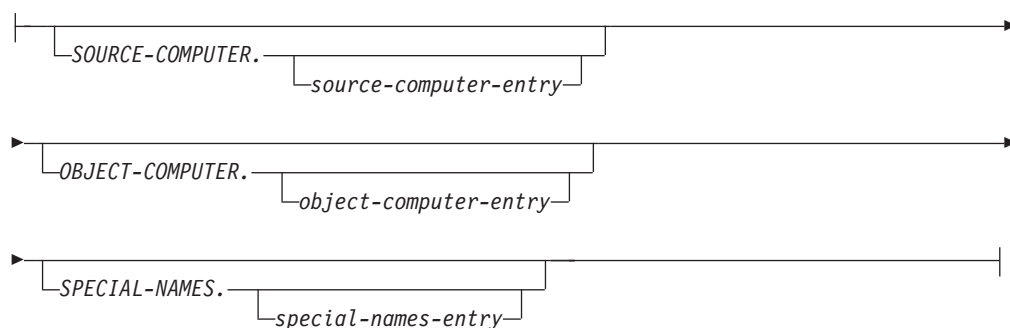
Identification Division

Chapter 4. Environment Division

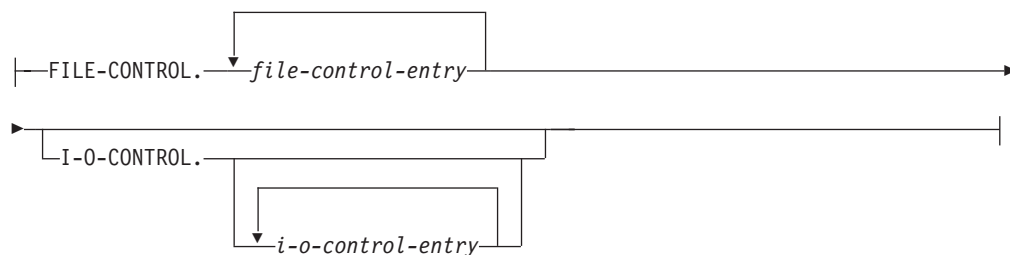
Environment Division - Format



Configuration Section Paragraphs:



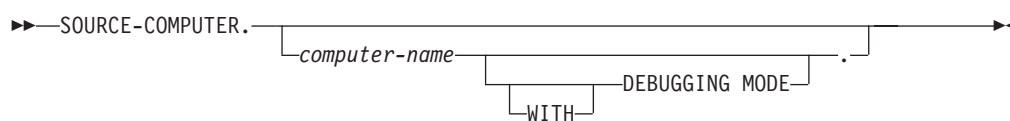
Input-Output Section Paragraphs:



Configuration Section

SOURCE-COMPUTER Paragraph

SOURCE-COMPUTER Paragraph - Format

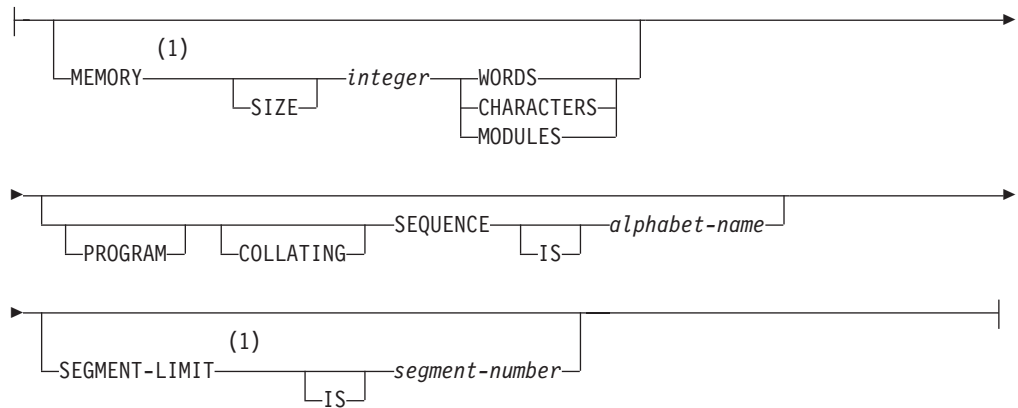


OBJECT-COMPUTER Paragraph

OBJECT-COMPUTER Paragraph - Format

►► OBJECT-COMPUTER. computer-name Entry .

Entry:



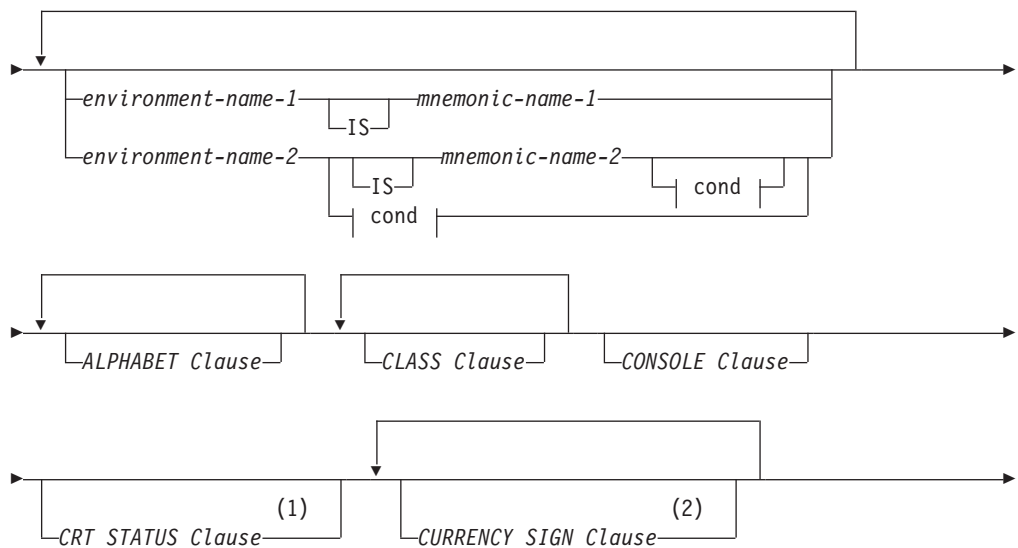
Notes:

- 1 Syntax-checked only.

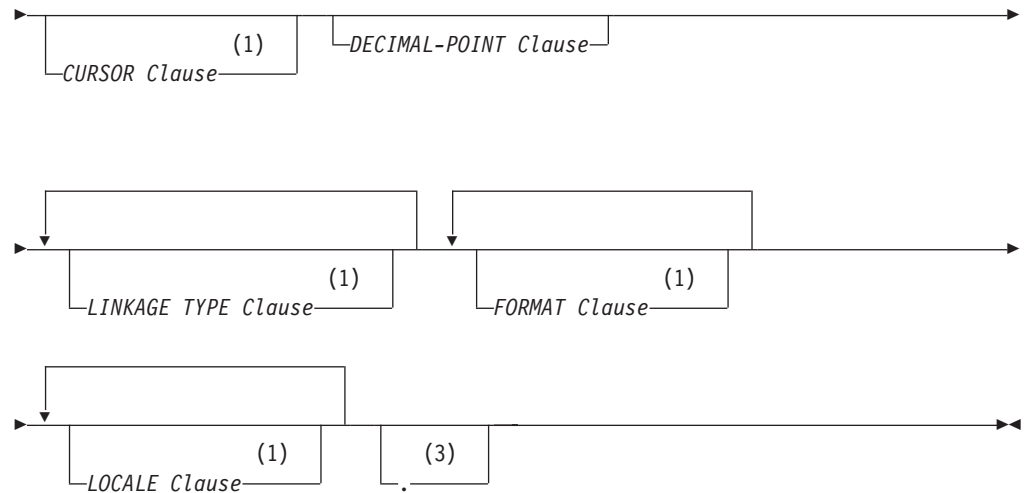
SPECIAL-NAMES Paragraph

SPECIAL-NAMES Paragraph - Format

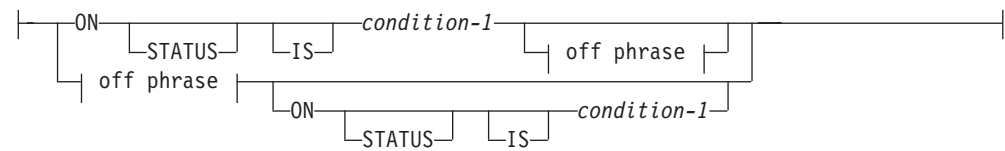
►► SPECIAL-NAMES. _____



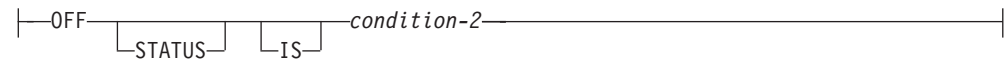
Environment Division



cond:



off phrase:



Notes:

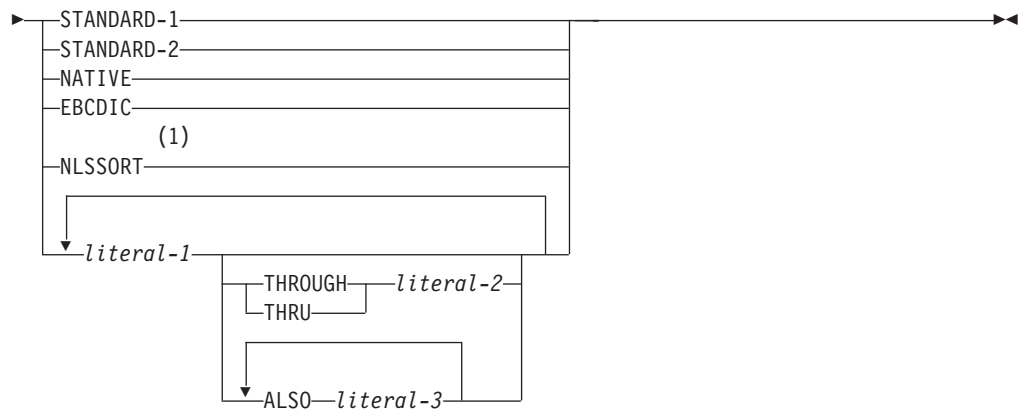
- 1 IBM Extension
- 2 Subsequent repetitions are IBM Extensions.
- 3 The separator period must be used if any of the optional clauses are selected. Clauses can be entered in any order.

ALPHABET Clause

ALPHABET Clause - Format



Environment Division

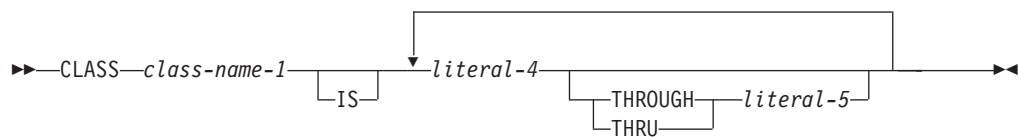


Notes:

- 1 IBM Extension

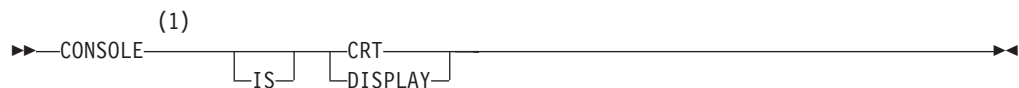
CLASS Clause

CLASS Clause - Format



CONSOLE Clause

CONSOLE Clause - Format

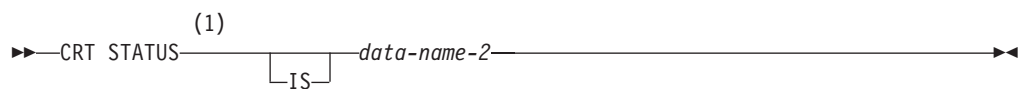


Notes:

- 1 IBM Extension

CRT STATUS Clause

CRT STATUS Clause - Format



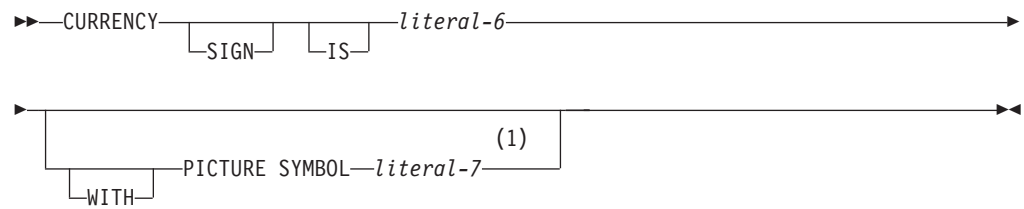
Notes:

- 1 IBM Extension

CURRENCY Clause

CURRENCY SIGN Clause - Format

Environment Division



Notes:

- 1 IBM Extension

CURSOR Clause

CURSOR Clause - Format



Notes:

- 1 IBM Extension

DECIMAL-POINT Clause

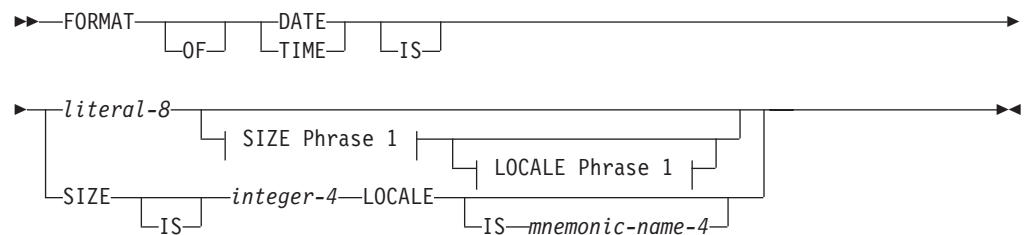
DECIMAL-POINT IS COMMA Clause - Format



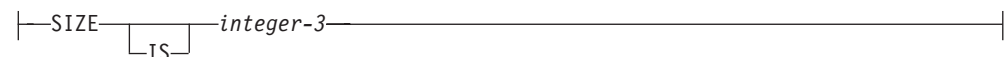
FORMAT Clause

IBM Extension

FORMAT Clause - Format



SIZE Phrase 1:



LOCALE Phrase 1:

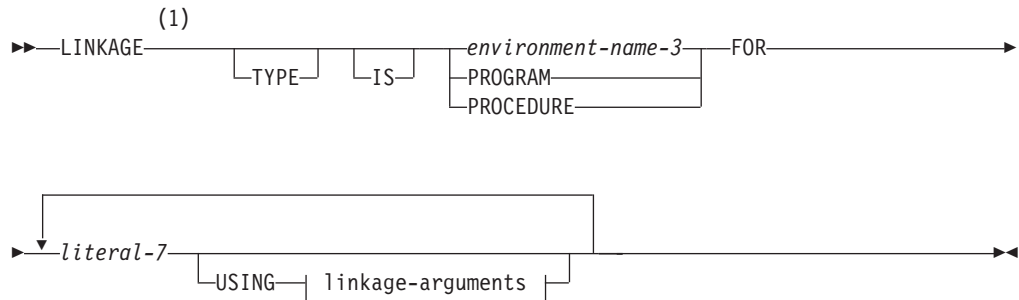


Environment Division

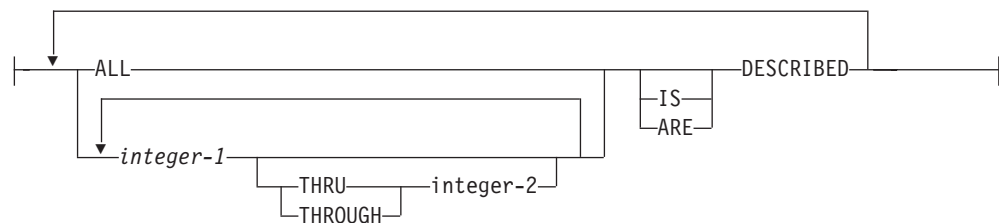
End of IBM Extension

LINKAGE-TYPE Clause

LINKAGE TYPE Clause - Format



linkage-arguments:



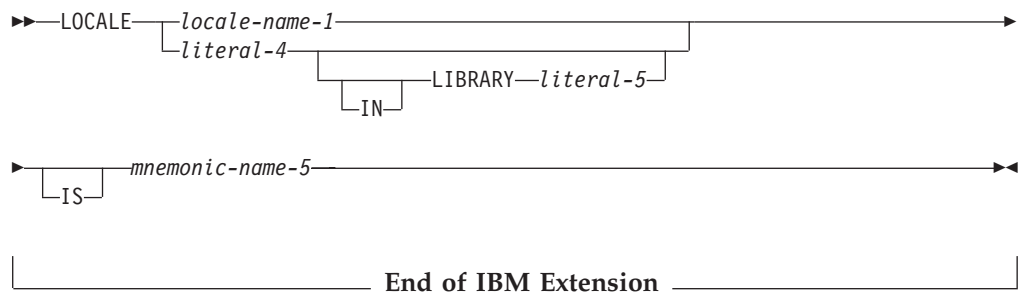
Notes:

- 1 IBM Extension

LOCALE Clause

IBM Extension

LOCALE Clause - Format



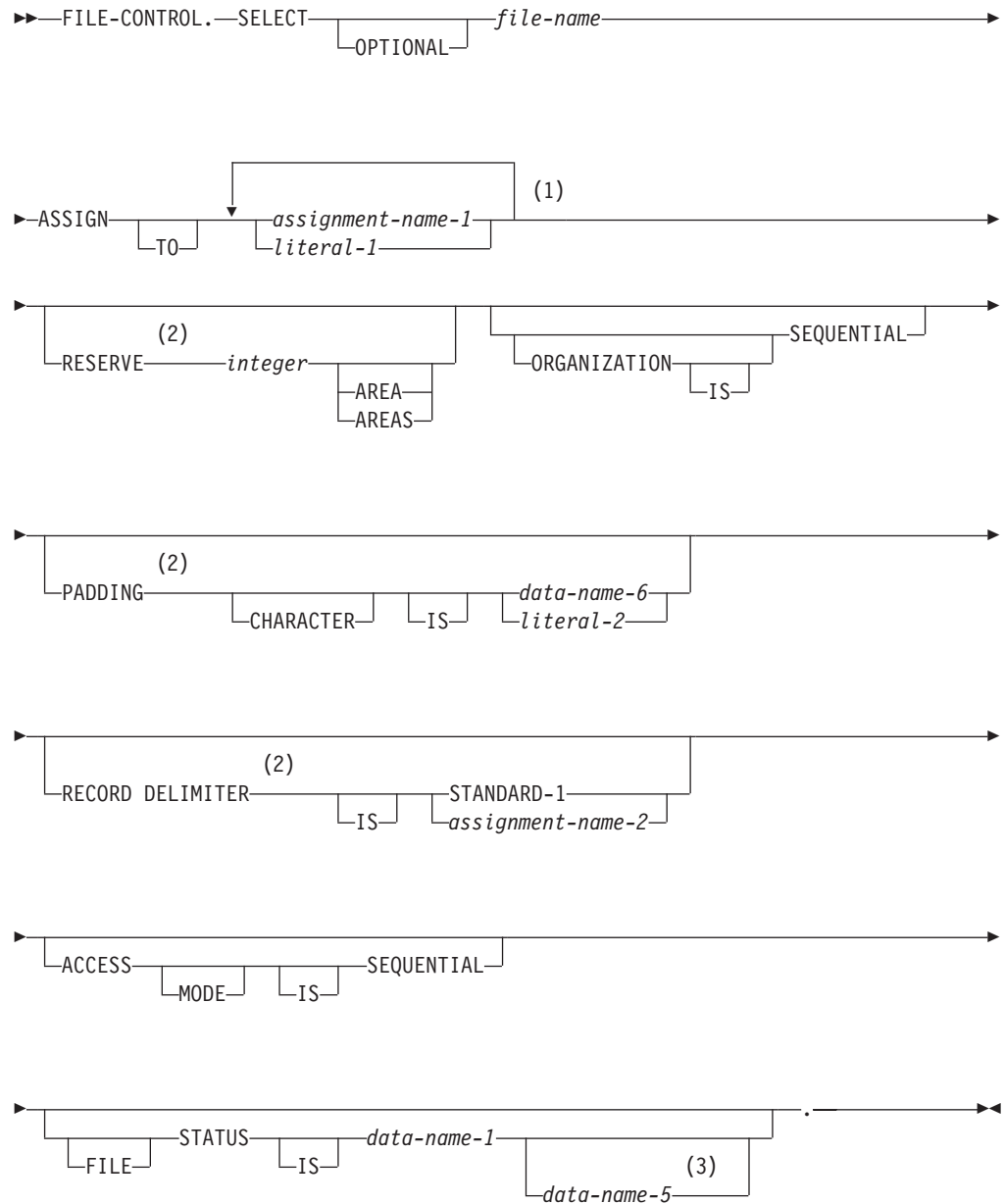
End of IBM Extension

Input-Output Section

Note: The keyword **FILE-CONTROL** appears only once at the beginning of the paragraph before the first file-control entry. The keyword **I-O-CONTROL** appears only once at the beginning of the paragraph before the first input-output-control entry.

FILE-CONTROL Paragraph

FILE-CONTROL Paragraph - Format 1 - Sequential

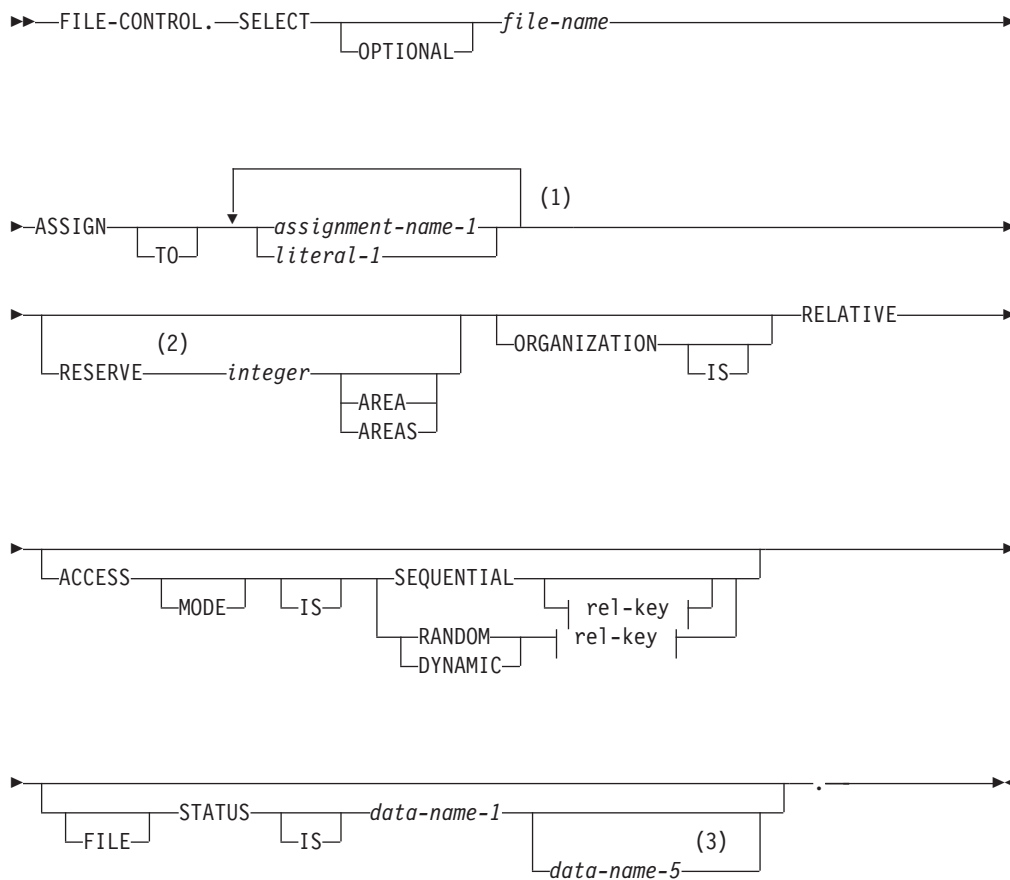


Notes:

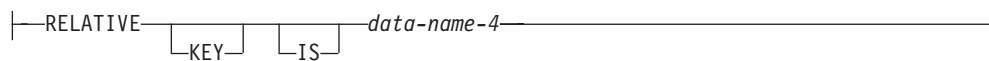
- 1 Subsequent repetitions syntax-checked only.
- 2 Syntax-checked only.
- 3 IBM Extension

FILE-CONTROL Paragraph - Format 2 - Relative

Environment Division



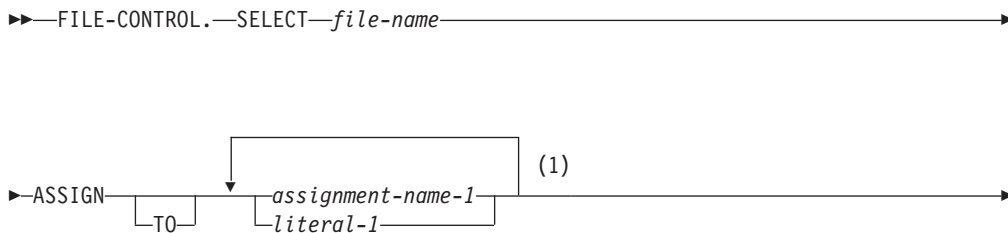
rel-key:



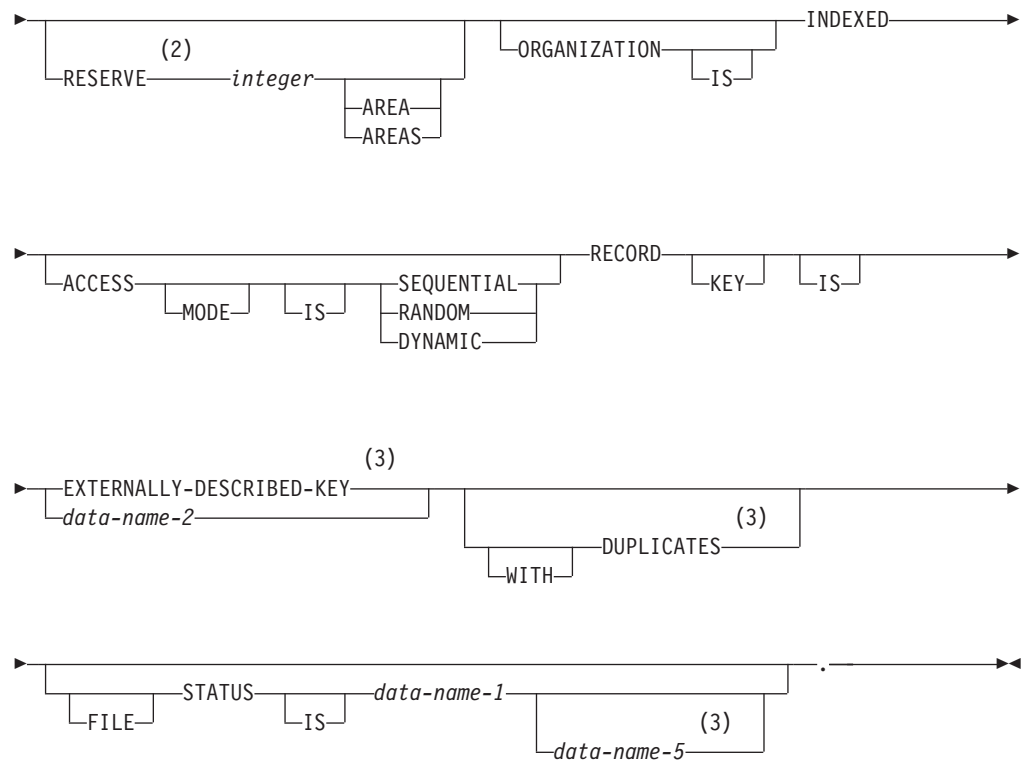
Notes:

- 1 Subsequent repetitions syntax-checked only.
- 2 Syntax-checked only.
- 3 IBM Extension

FILE-CONTROL Paragraph - Format 3 - Indexed



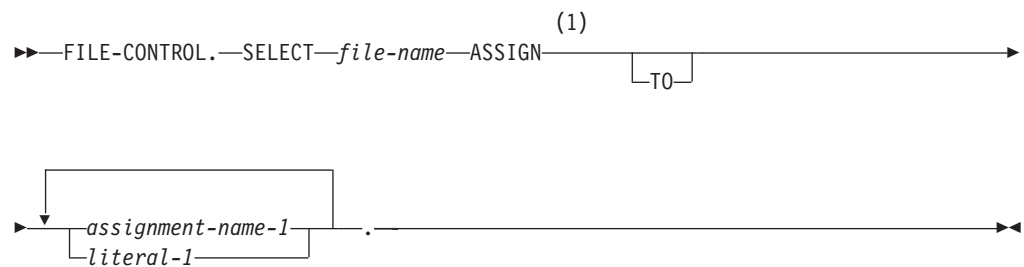
Environment Division



Notes:

- 1 Subsequent repetitions syntax-checked only.
- 2 Syntax-checked only.
- 3 IBM Extension

FILE-CONTROL Paragraph - Format 4 - Sort or Merge



Notes:

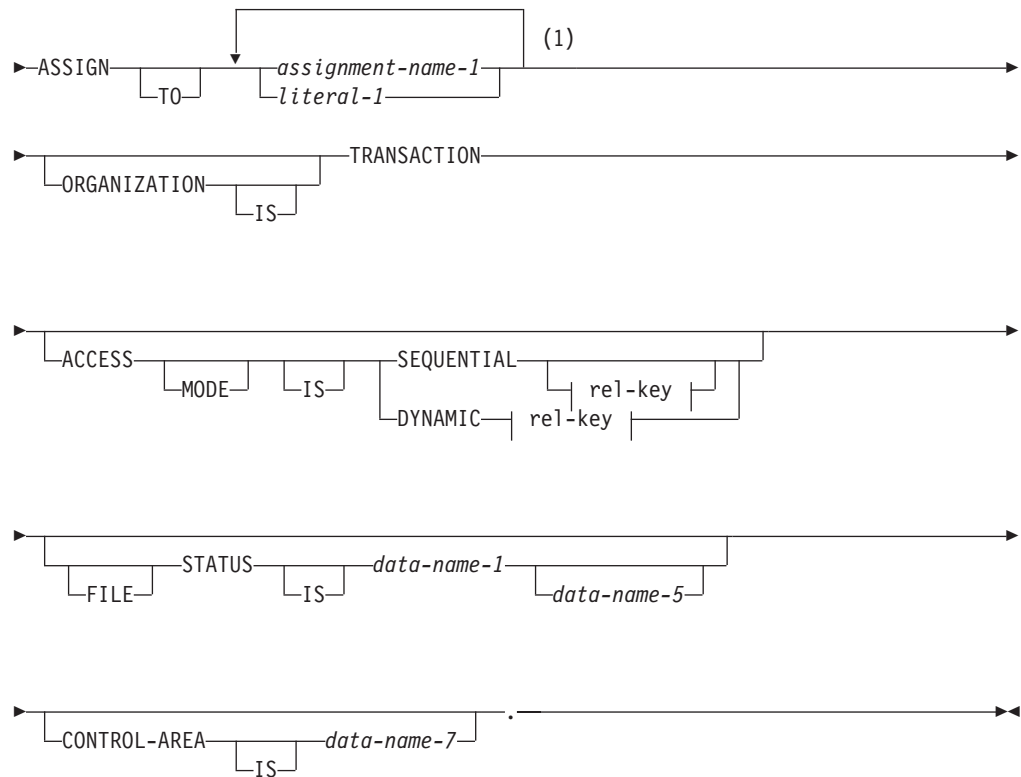
- 1 Syntax checked only.

IBM Extension

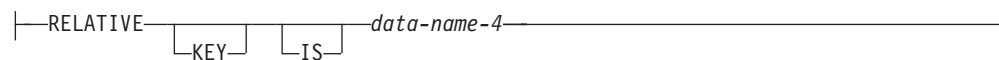
FILE-CONTROL Paragraph - Format 5 - Transaction



Environment Division



rel-key:



Notes:

1 Subsequent repetitions syntax checked only.

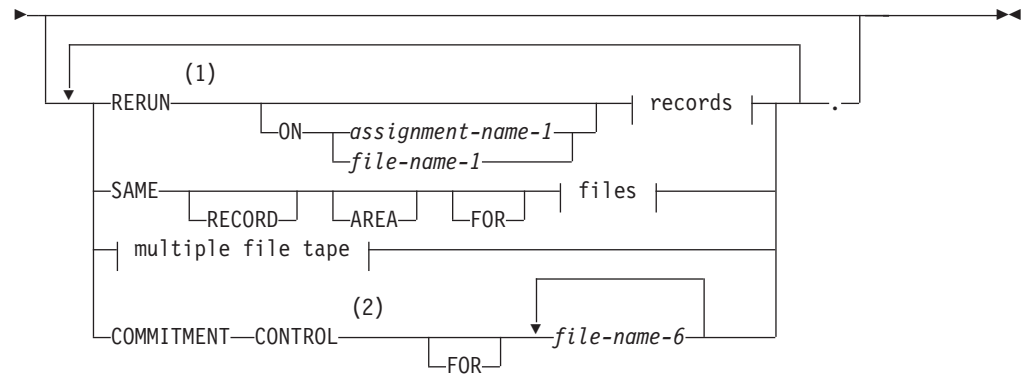
End of IBM Extension

I-O-CONTROL Paragraph

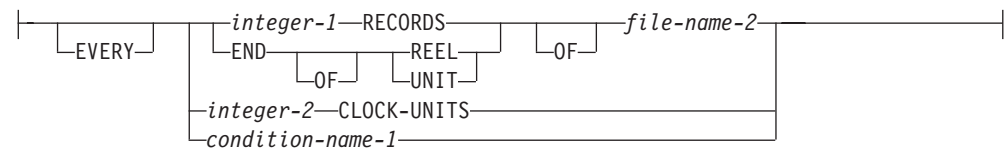
I-O-CONTROL Paragraph - Format 1 - Sequential



Environment Division



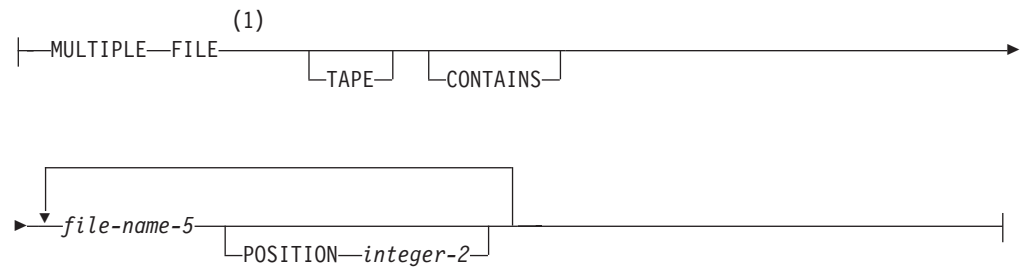
records:



files:



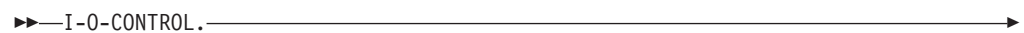
multiple file tape:



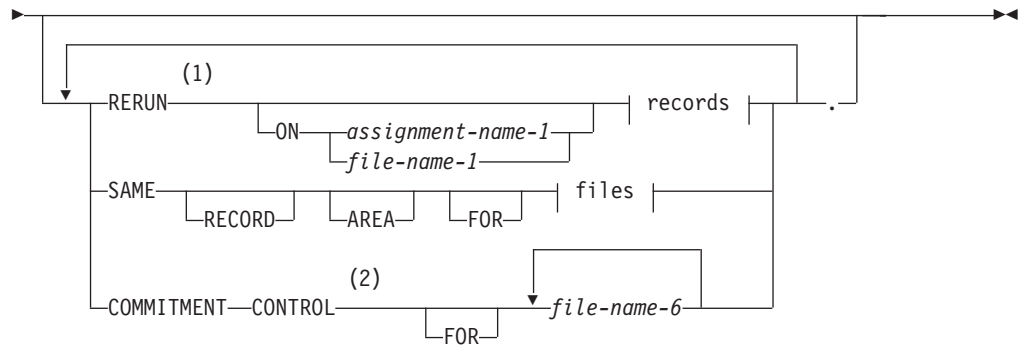
Notes:

- 1 Syntax-checked only.
- 2 IBM Extension

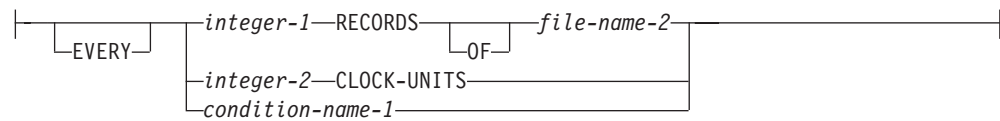
I-O-CONTROL Paragraph - Format 2 - Relative/Indexed



Environment Division



records:



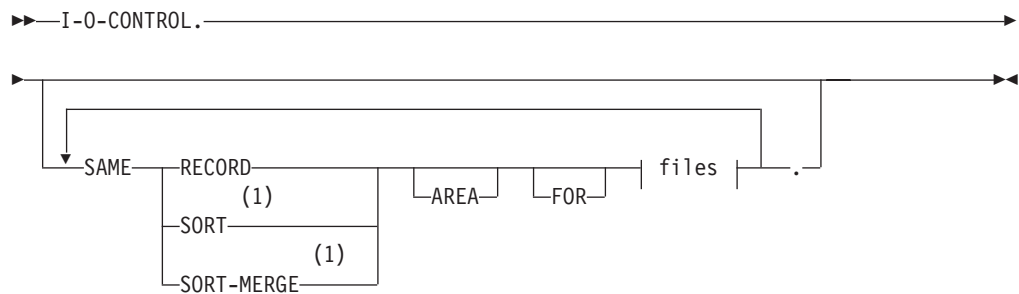
files:



Notes:

- 1 Syntax-checked only.
- 2 IBM Extension

I-O-CONTROL Paragraph - Format 3 - Sort/Merge



files:

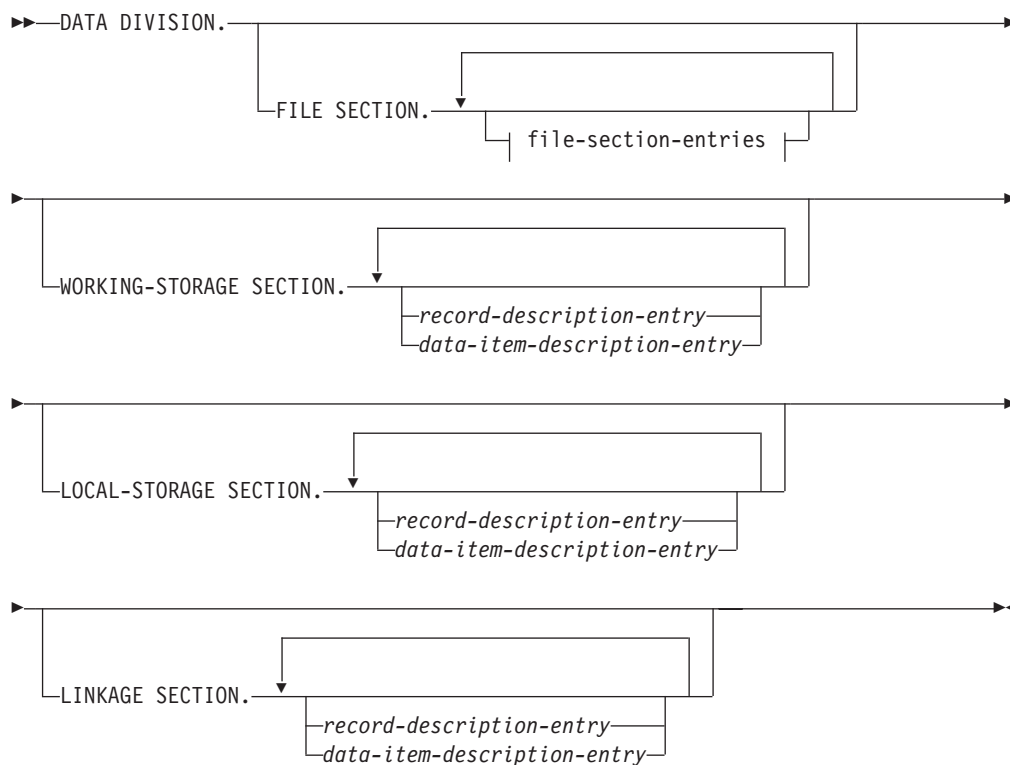


Notes:

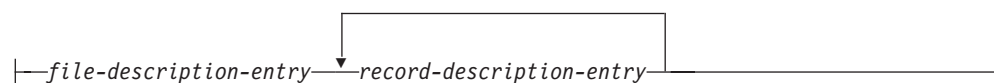
- 1 Syntax-checked only.

Chapter 5. Data Division

Data Division - Format

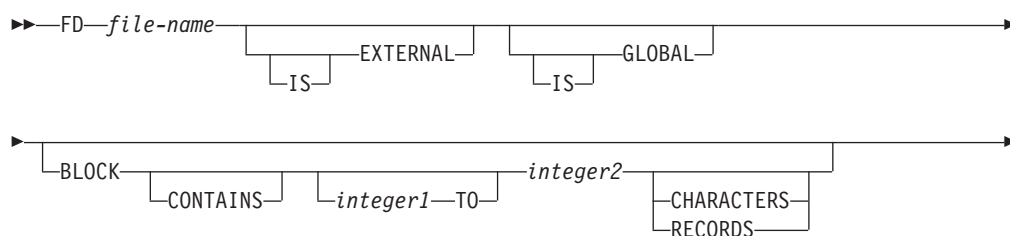


file-section-entries:

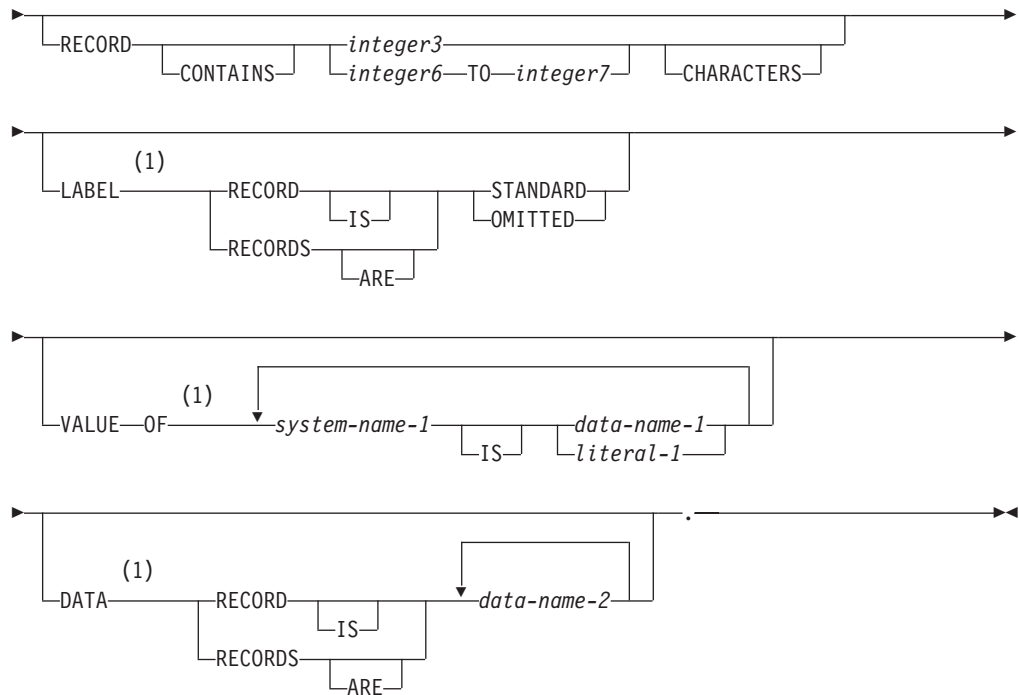


File Section

File Description Entry - Format 1a - Formatfile, Database



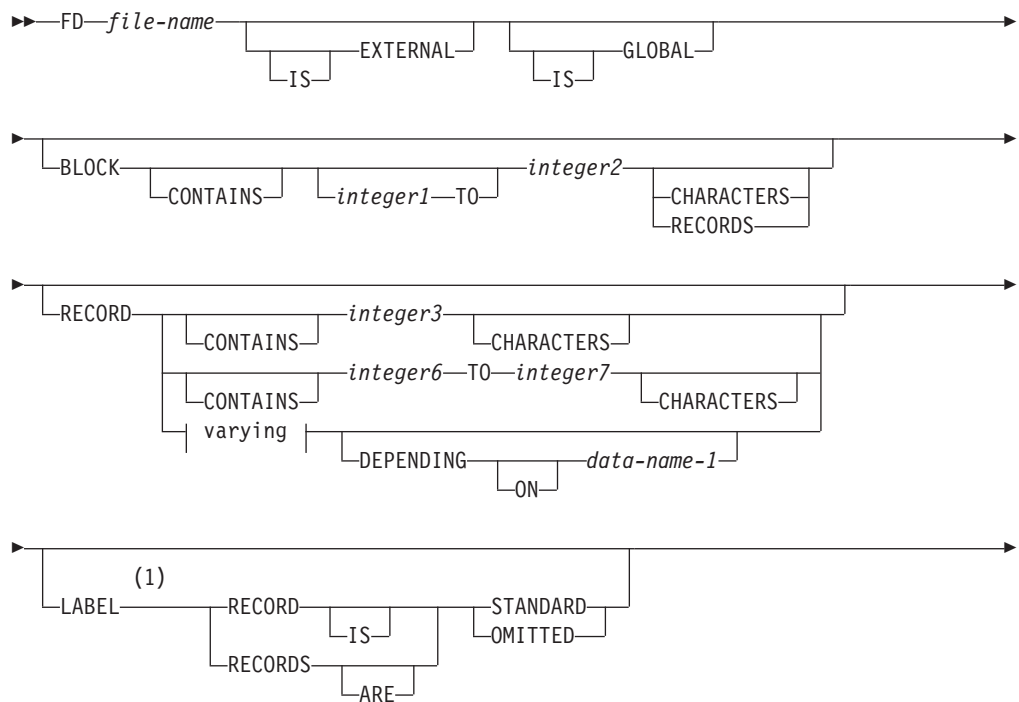
Data Division



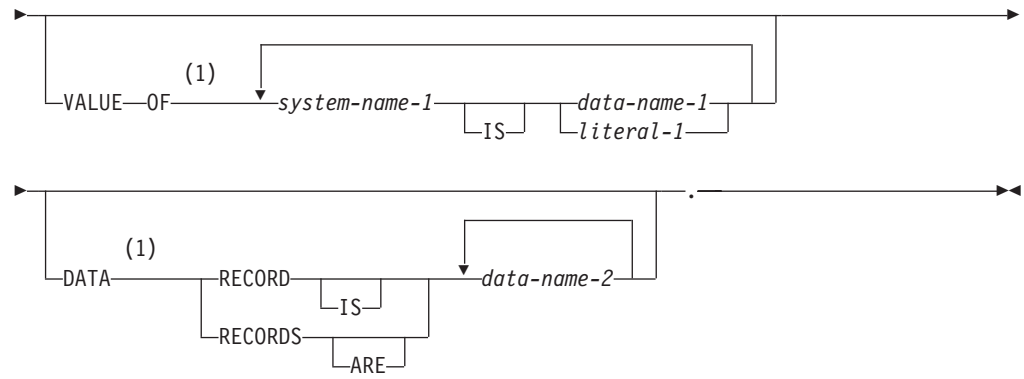
Notes:

- 1 Syntax-checked only.

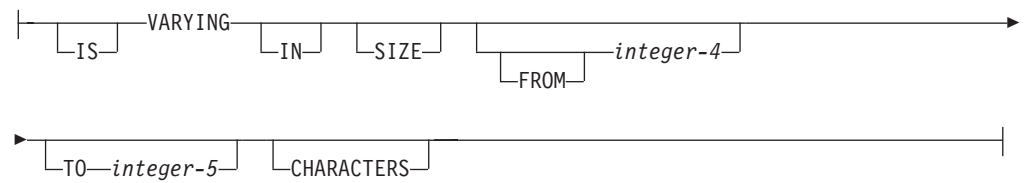
File Description Entry - Format 1b - Disk



Data Division



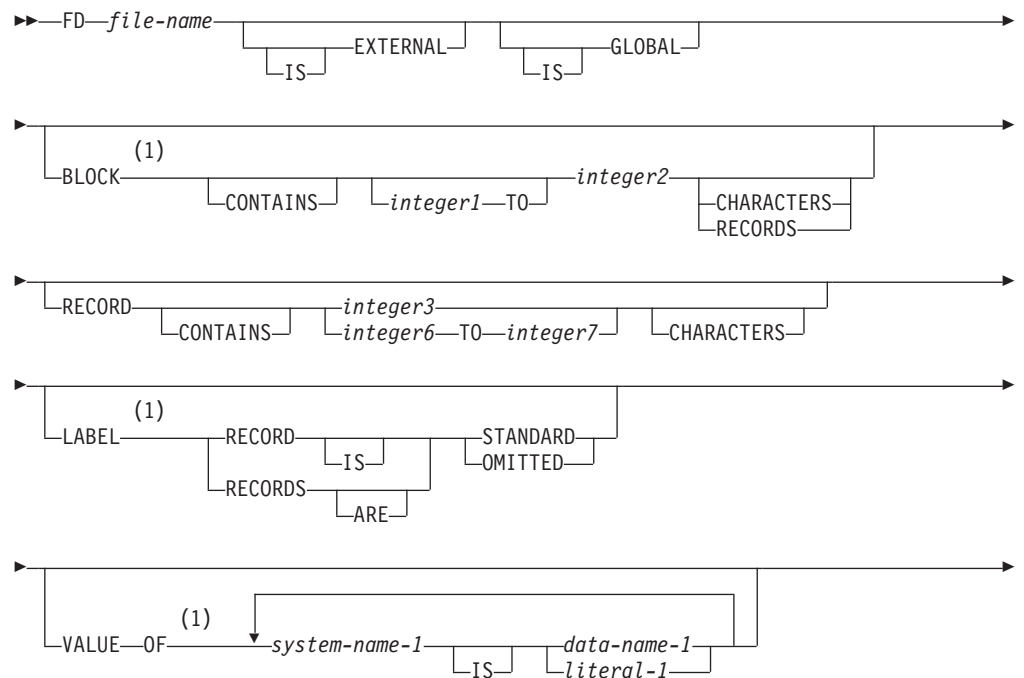
varying:



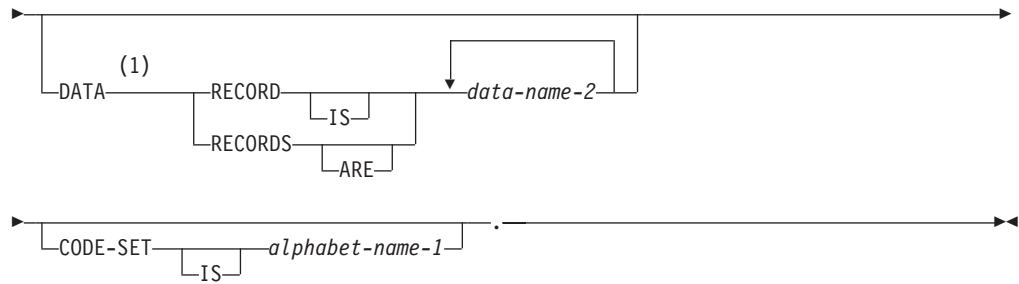
Notes:

- 1 Syntax-checked only.

File Description Entry - Format 2 - Diskette



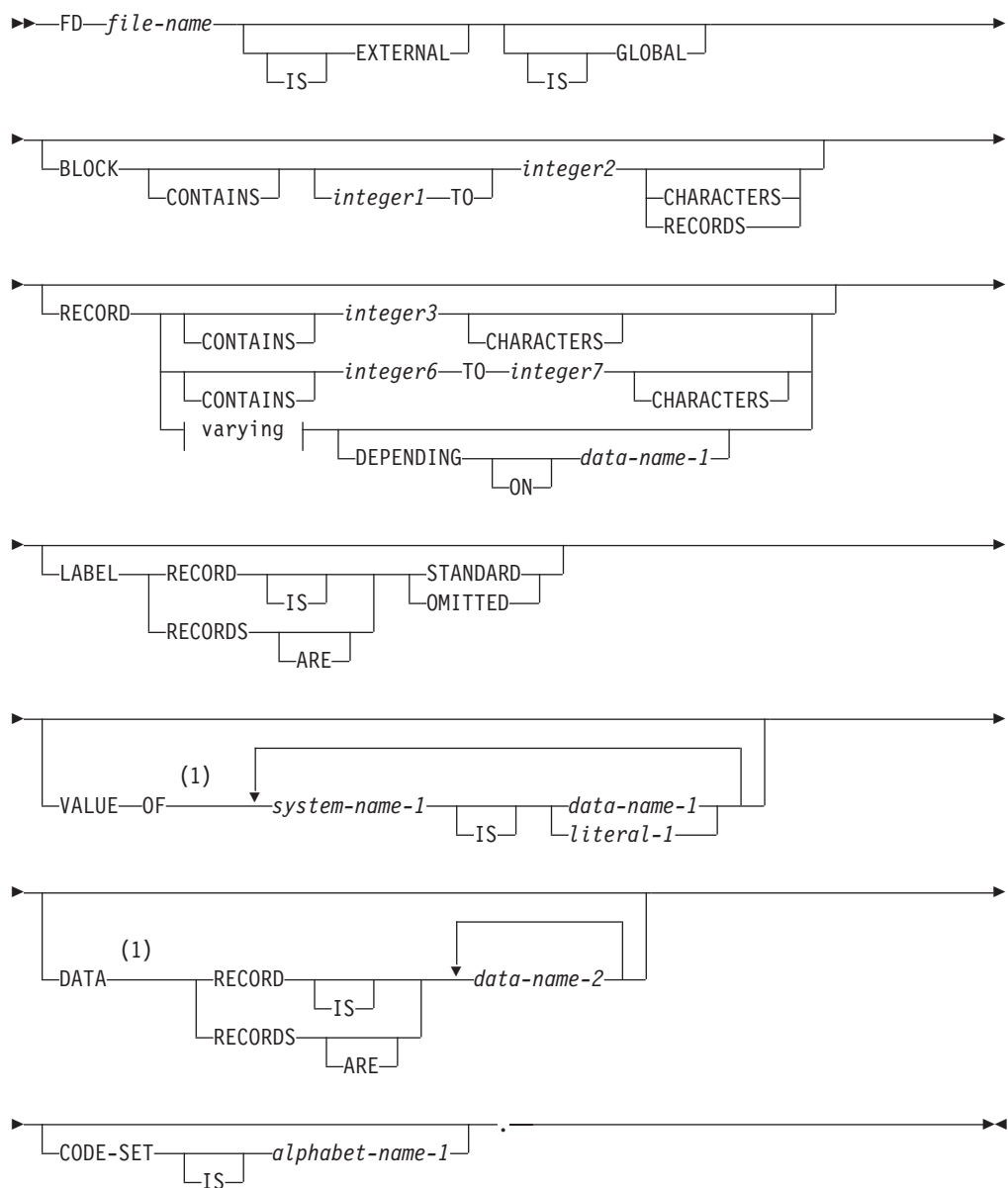
Data Division



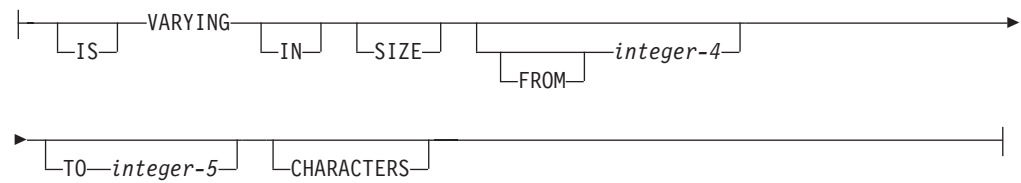
Notes:

- 1 Syntax-checked only.

File Description Entry - Format 3 - Tapefile



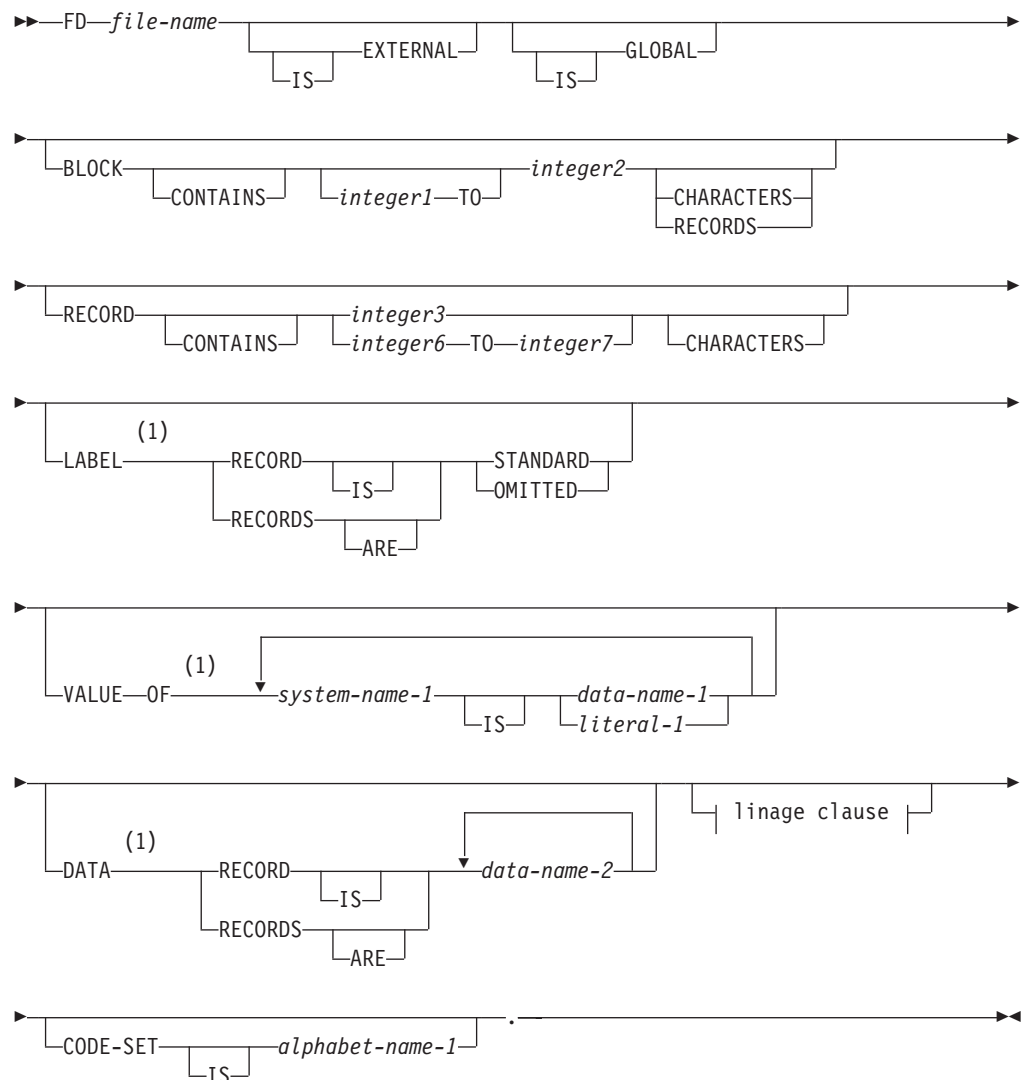
varying:



Notes:

- 1 Syntax-checked only.

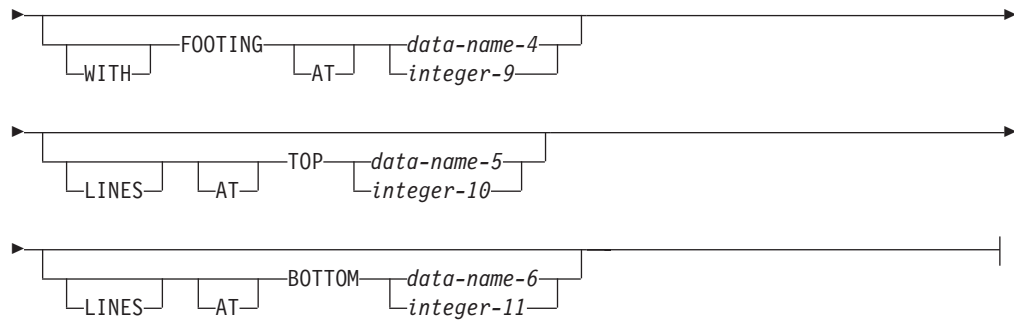
File Description Entry - Format 4 - Printer



linage clause:



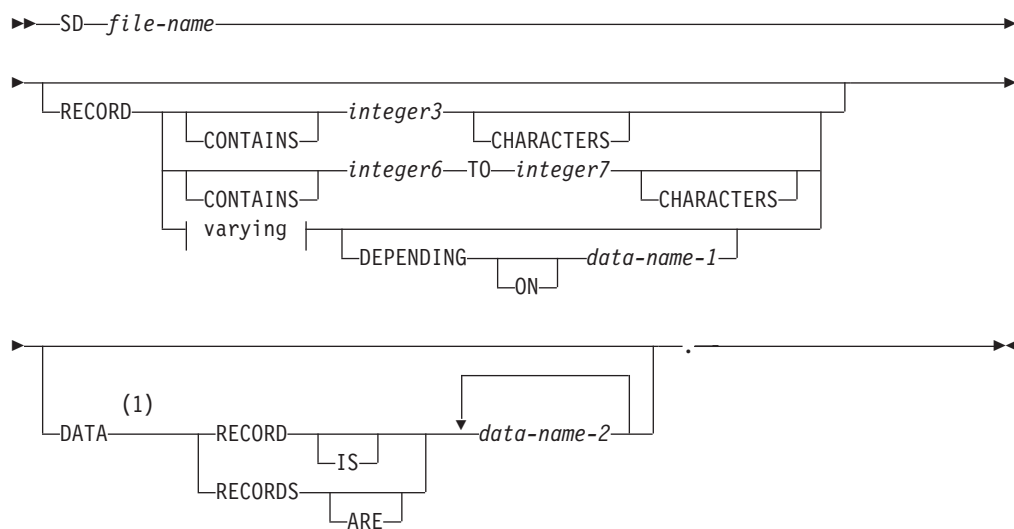
Data Division



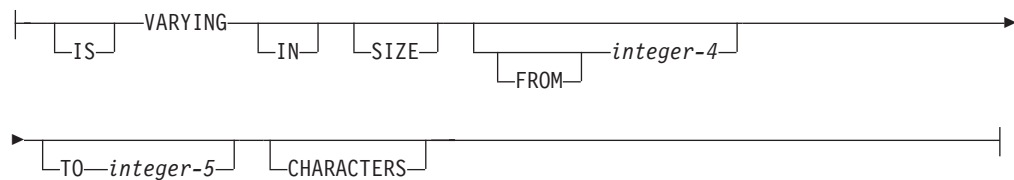
Notes:

- 1 Syntax-checked only.

File Description Entry - Format 5 - Sort/Merge



varying:

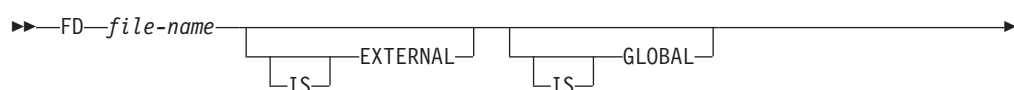


Notes:

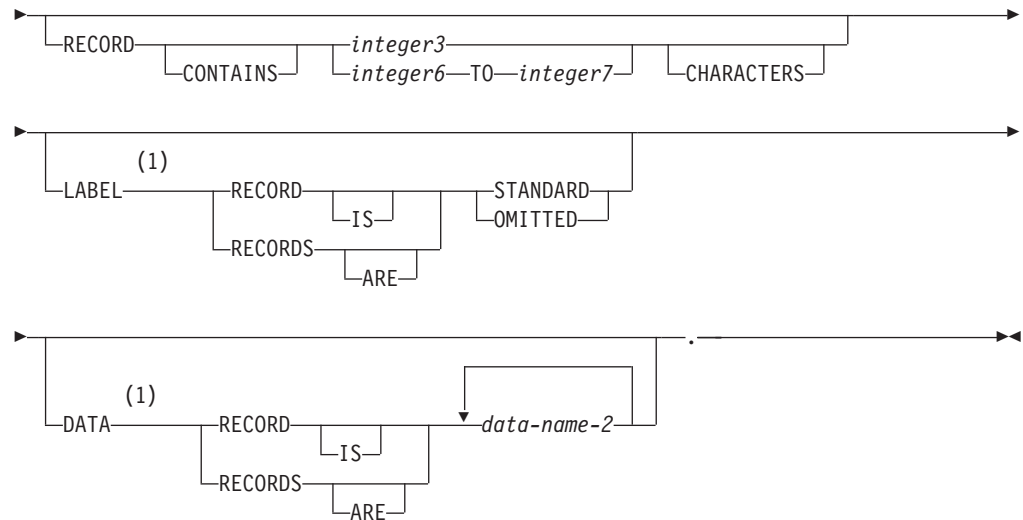
- 1 Syntax-checked only.

IBM Extension

File Description Entry - Format 6 - Transaction



Data Division



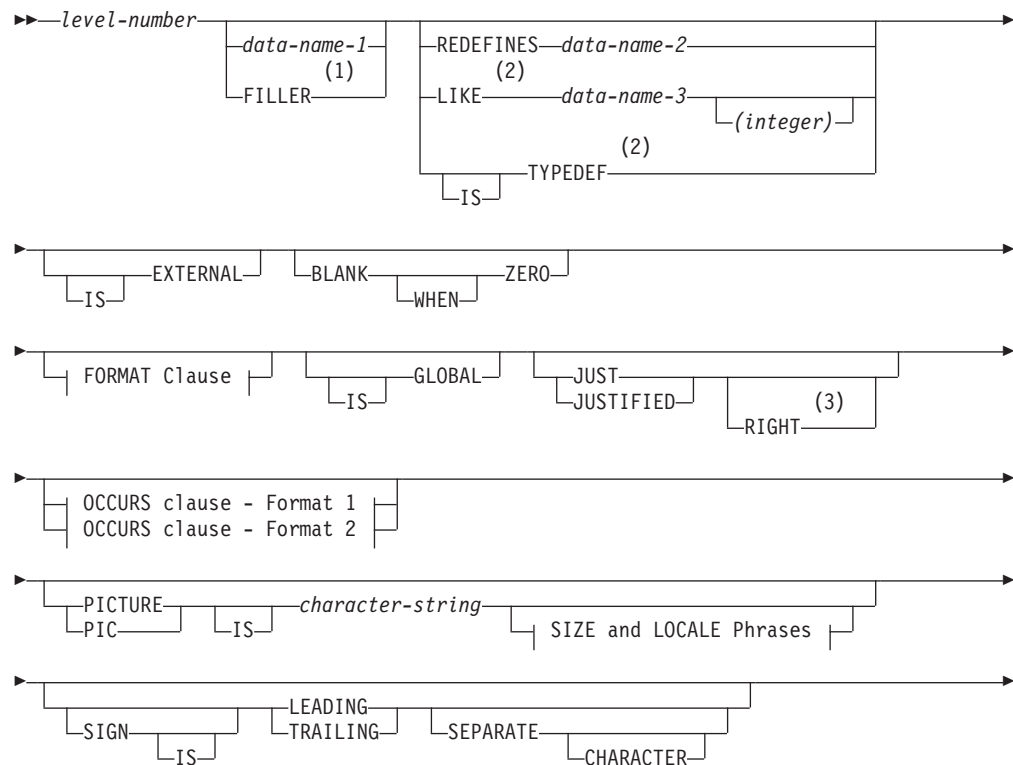
Notes:

1 Syntax-checked only.

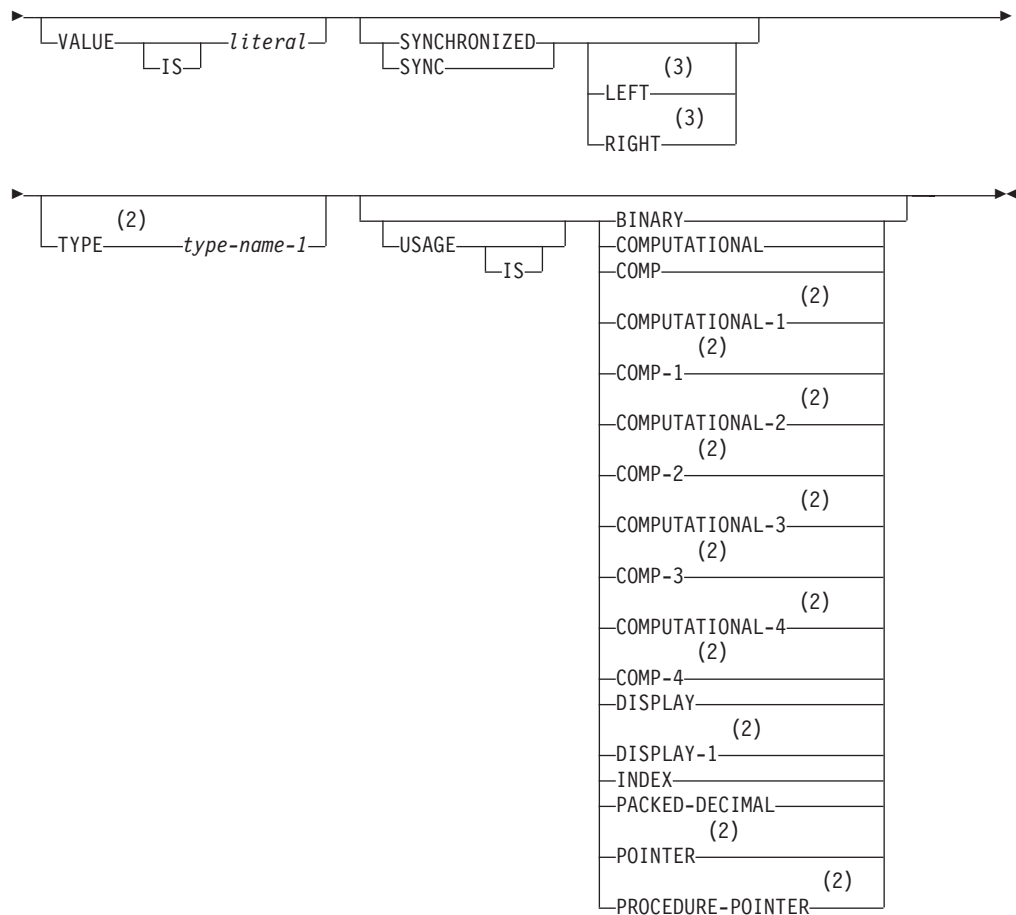
End of IBM Extension

Working-Storage Section

Data Description Entry - General Format 1



Data Division



Notes:

- 1 Cannot be used with the TYPEDEF clause.
- 2 IBM Extension
- 3 Syntax-checked only

Data Description Entry - General Format 1 (continued)

►► ————— ◄◄

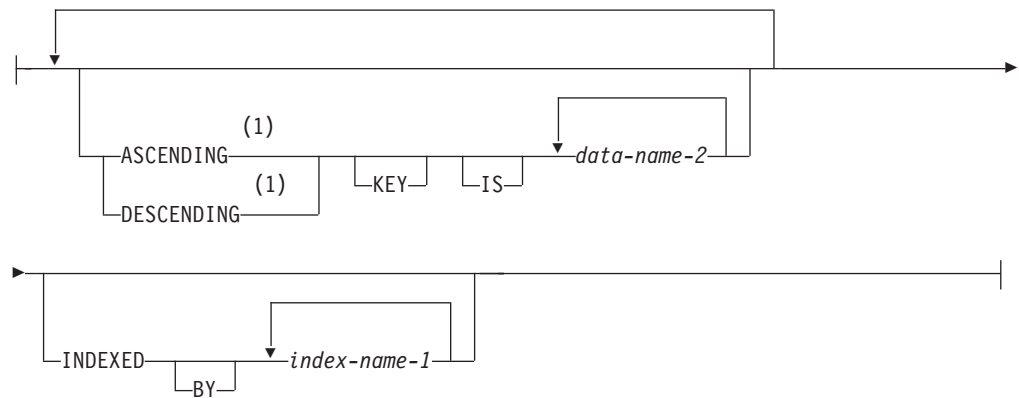
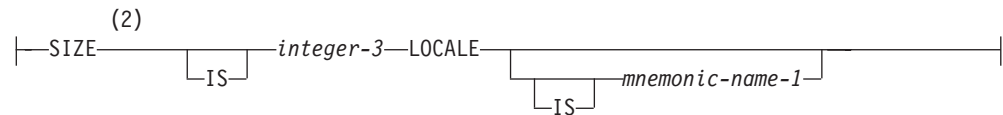
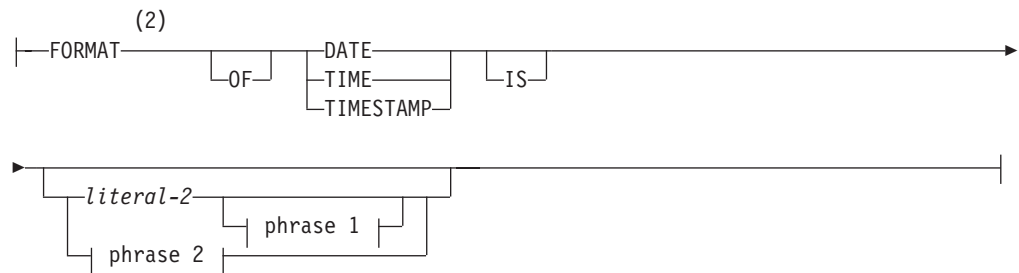
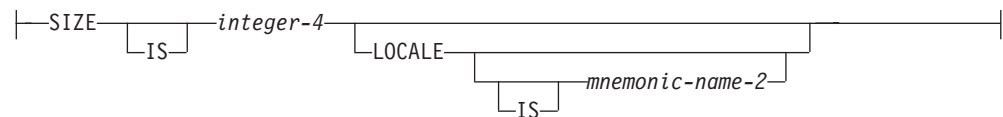
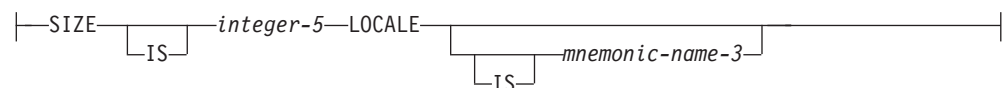
OCCURS clause - Format 1:

|—OCCURS—*integer-2*—| **TIMES** | key-indexed-by phrase |—————|

OCCURS clause - Format 2:

|—OCCURS—*integer-1*—TO—*integer-2*—| **TIMES** |—DEPENDING—| **ON** |—*data-name-1*—►

► | key-indexed-by phrase |—————|

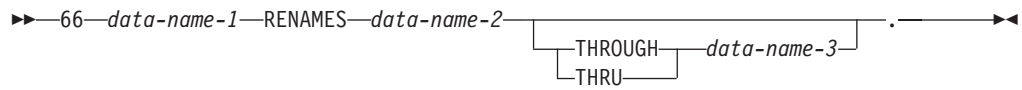
key-indexed-by phrase:**Size and Locale Phrases:****FORMAT Clause:****phrase 1:****phrase 2:****Notes:**

- 1 Cannot be used with boolean data type

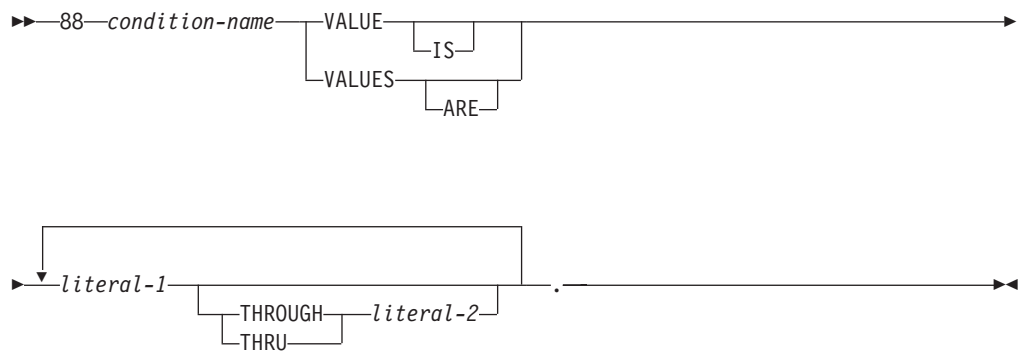
Data Division

2 IBM Extension

Data Description Entry - General Format 2

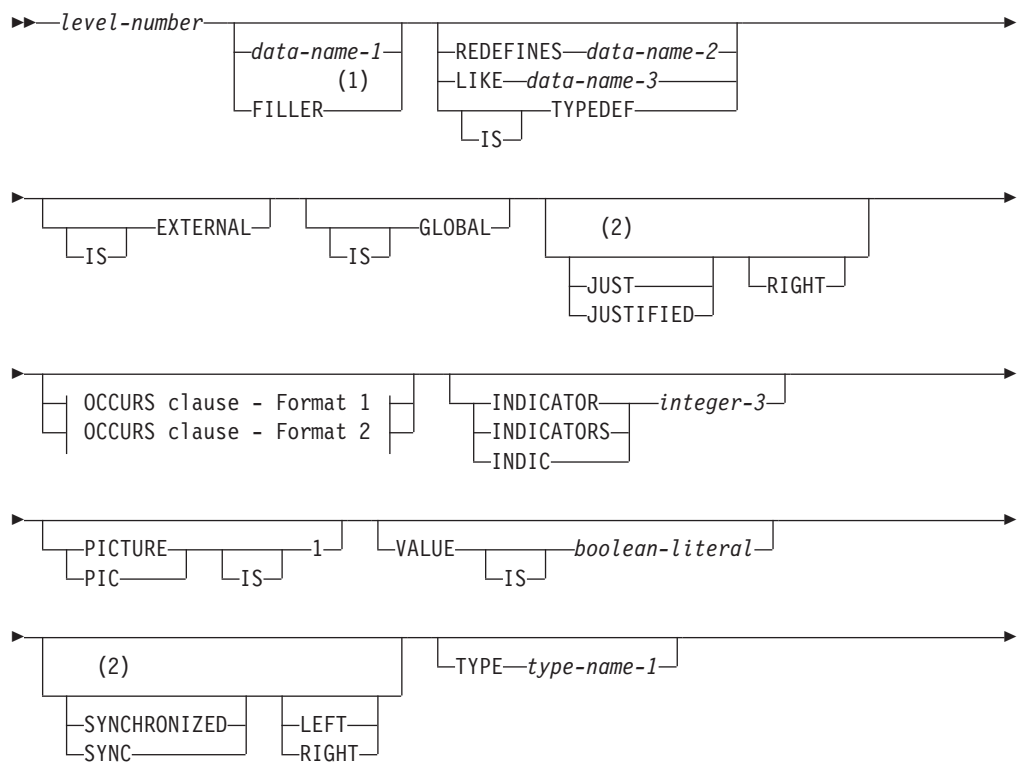


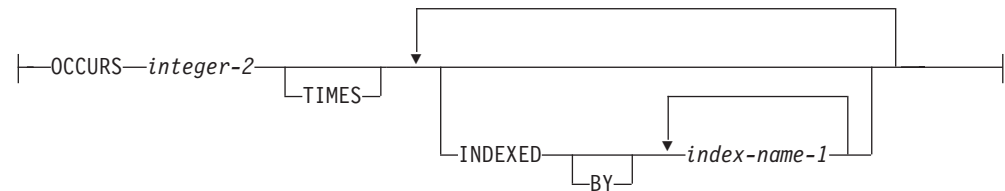
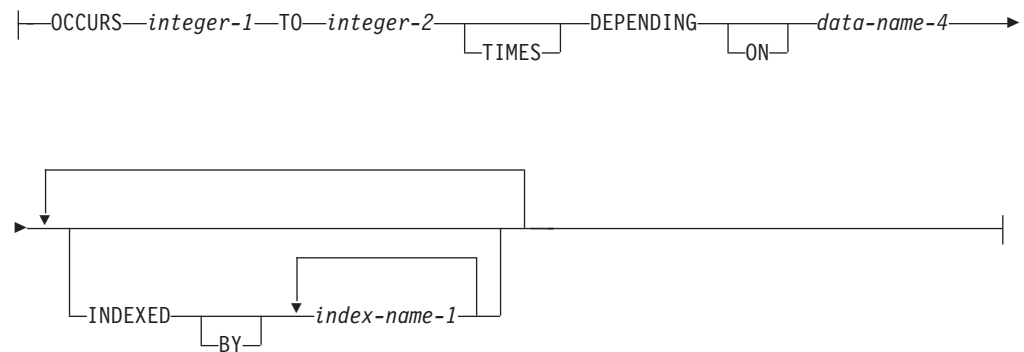
Data Description Entry - General Format 3



IBM Extension

Data Description Entry - Format 4 - Boolean Data



**OCCURS clause - Format 1:****OCCURS clause - Format 2:****Notes:**

- 1 Cannot be used with the TYPEDEF clause.
- 2 Syntax-checked only

End of IBM Extension

Local-Storage Section

See "Working-Storage Section" on page 35 for data-description entry clause formats.

The EXTERNAL clause cannot be specified in the Local-Storage Section. You can specify the Local-Storage Section in both recursive and non-recursive programs.

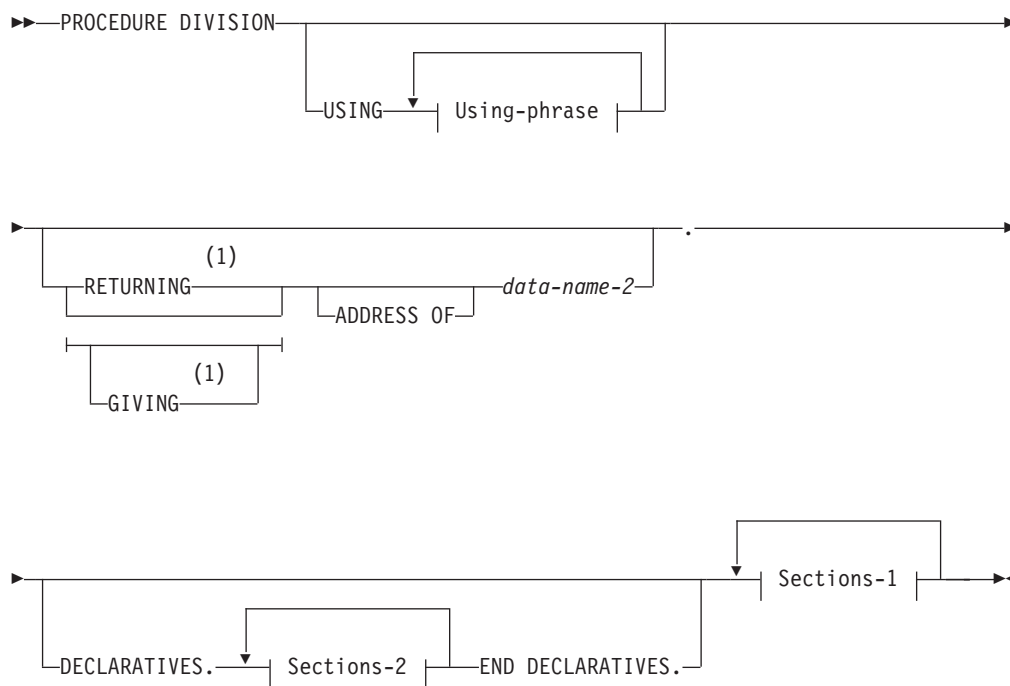
Linkage Section

See "Working-Storage Section" on page 35 for data-description entry clause formats.

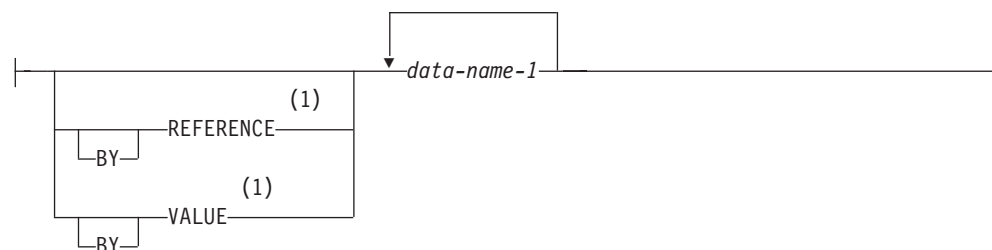
The EXTERNAL clause cannot be specified in the Linkage Section.

Chapter 6. Procedure Division

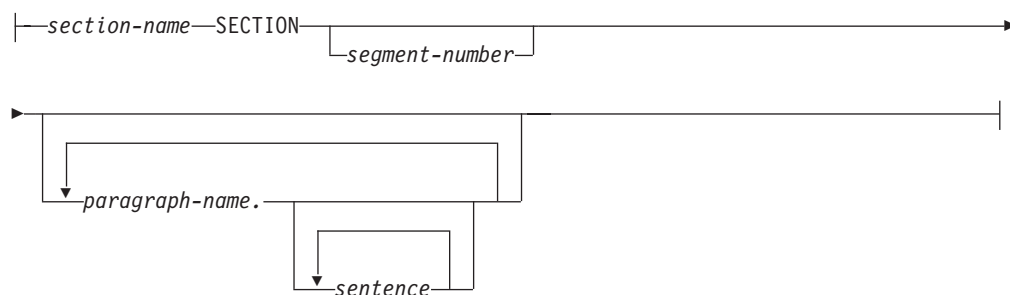
Procedure Division - Format 1



Using-phrase:

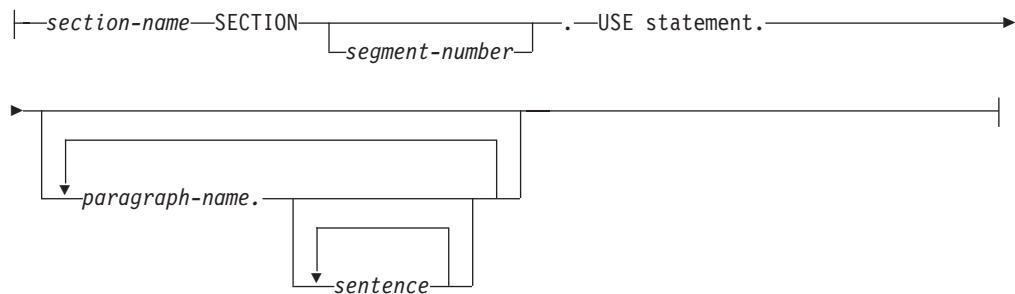


Sections-1:



Procedure Division

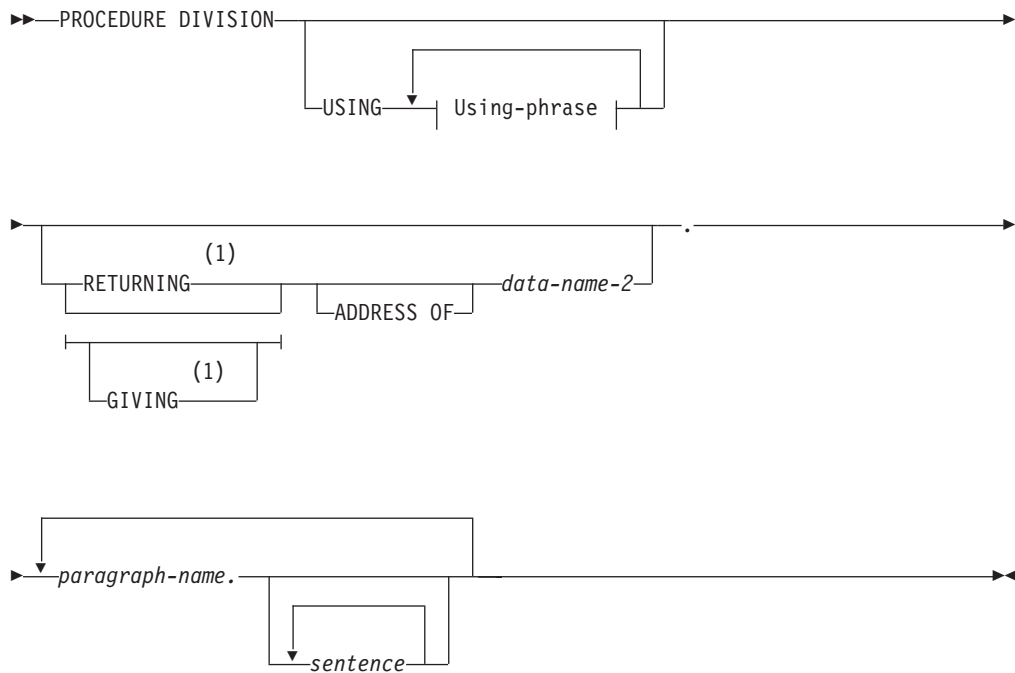
Sections-2:



Notes:

- 1 IBM Extension

Procedure Division - Format 2



Notes:

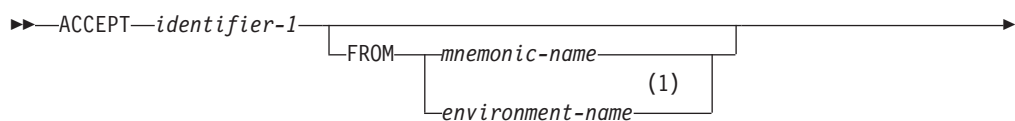
- 1 IBM Extension

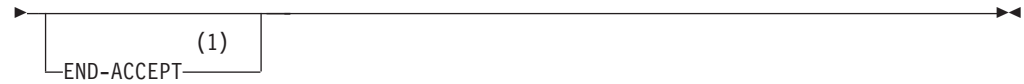
Procedure Division Statements

These statements are presented in alphabetical order.

ACCEPT Statement

ACCEPT Statement - Format 1 - Data Transfer

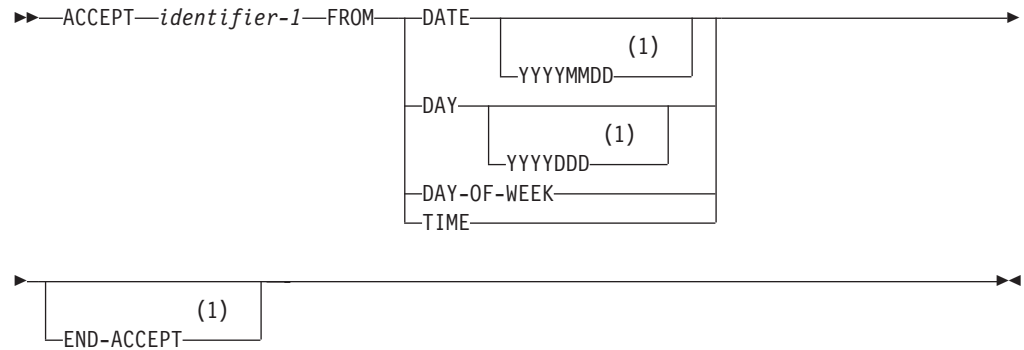




Notes:

- 1 IBM Extension

ACCEPT Statement - Format 2 - System Info Transfer

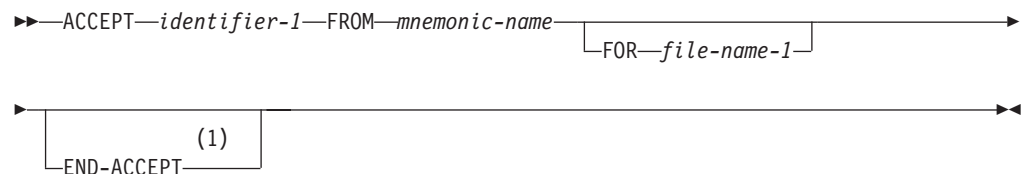


Notes:

- 1 IBM Extension

IBM Extension

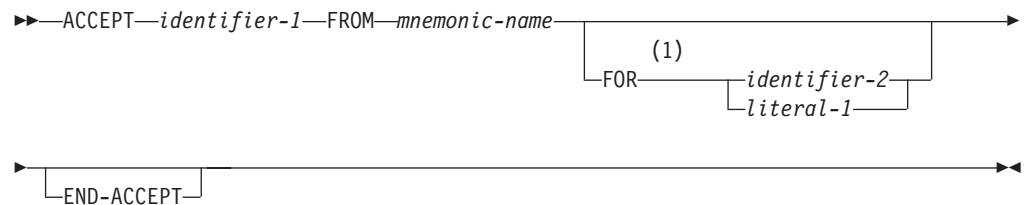
ACCEPT Statement - Format 3 - Feedback



Notes:

- 1 IBM Extension

ACCEPT Statement - Format 4 - Local Data Area

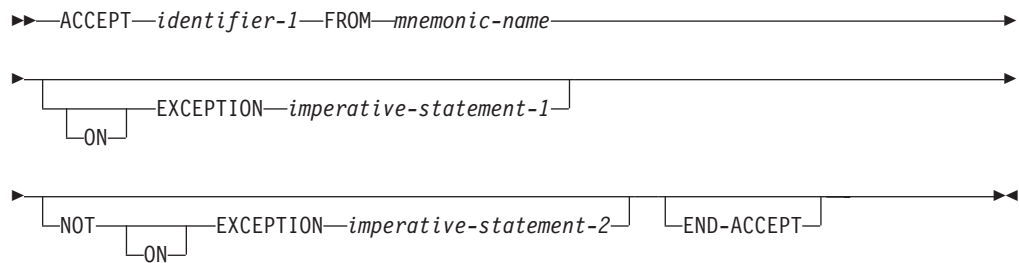


Notes:

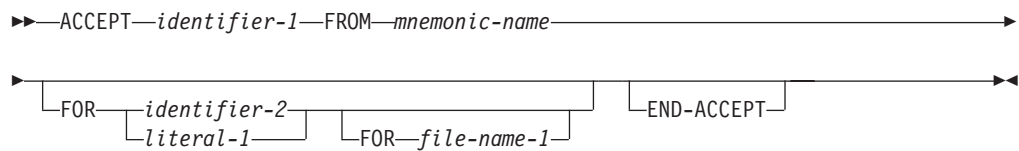
- 1 Syntax-checked only.

Procedure Division Statements

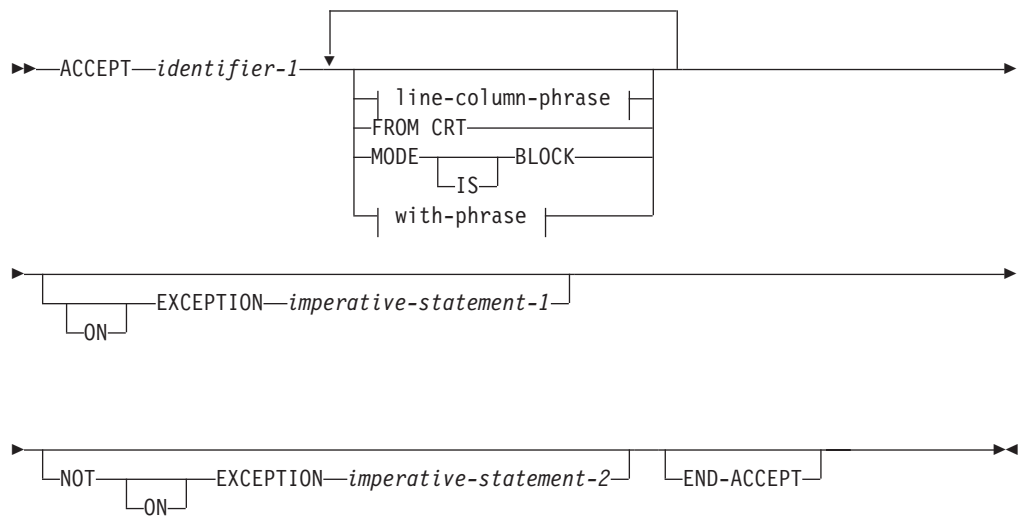
ACCEPT Statement - Format 5 - PIP Data Area



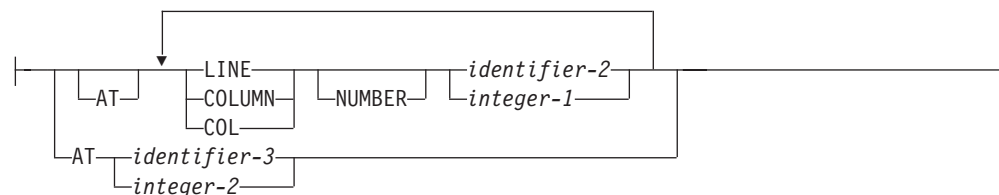
ACCEPT Statement - Format 6 - Attribute Data



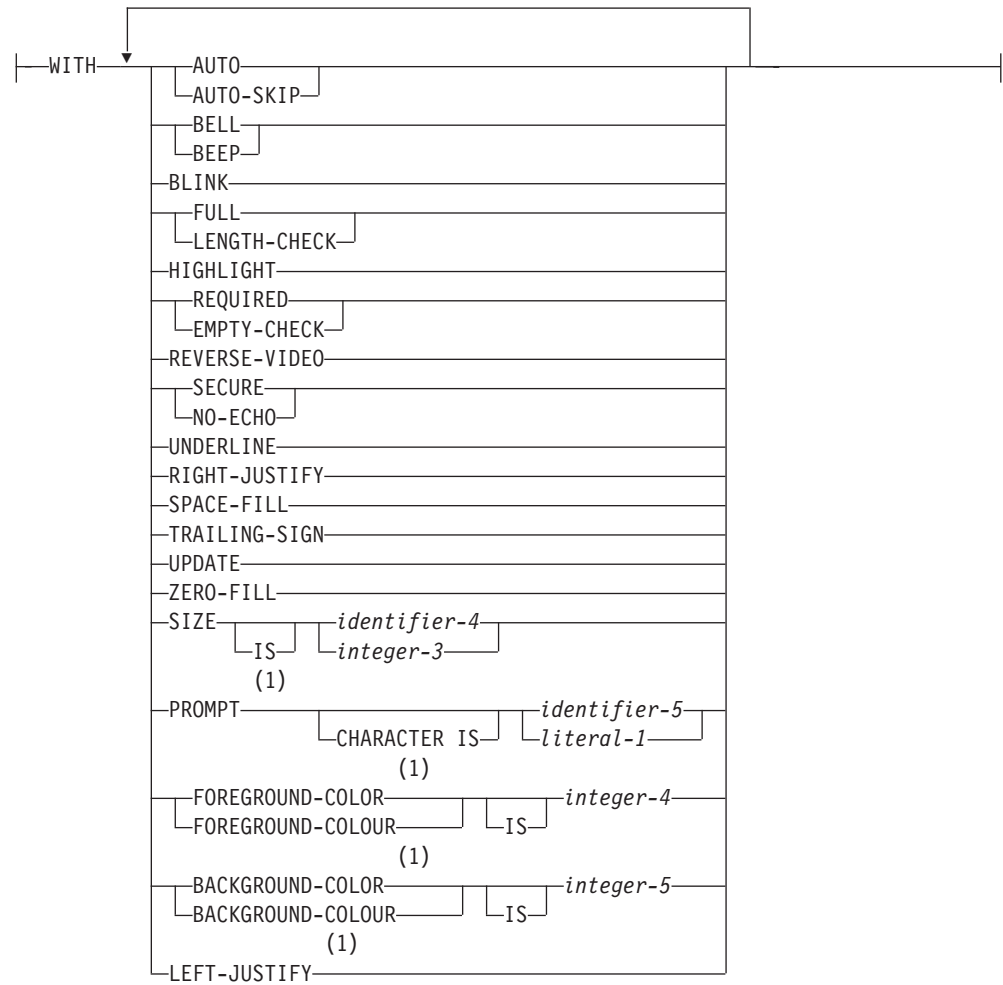
ACCEPT Statement - Format 7 - Workstation I/O



line-column-phrase:



with-phrase:



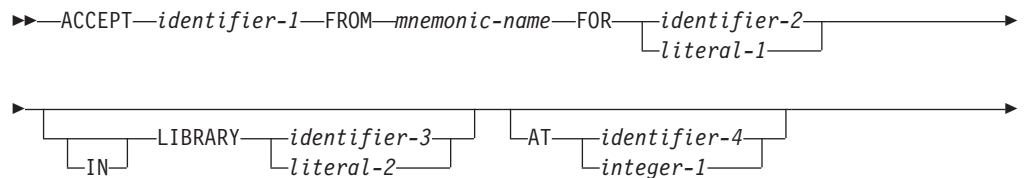
Notes:

1 Syntax-checked only.

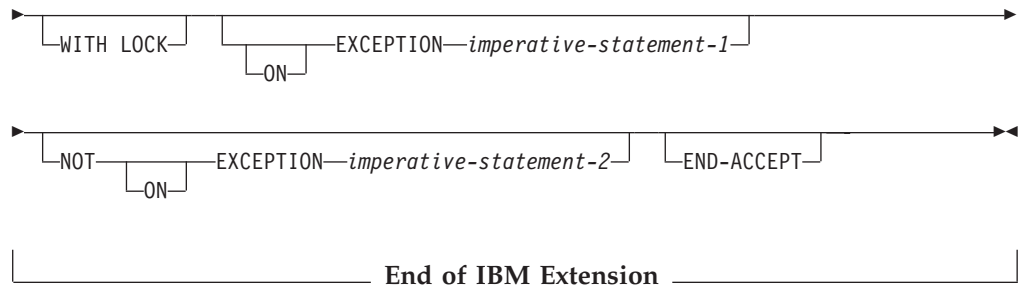
ACCEPT Statement - Format 8 - Session I/O



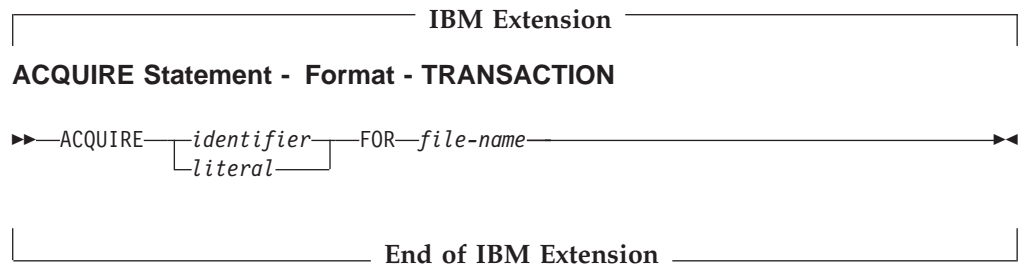
ACCEPT Statement - Format 9 - Data Area



Procedure Division Statements

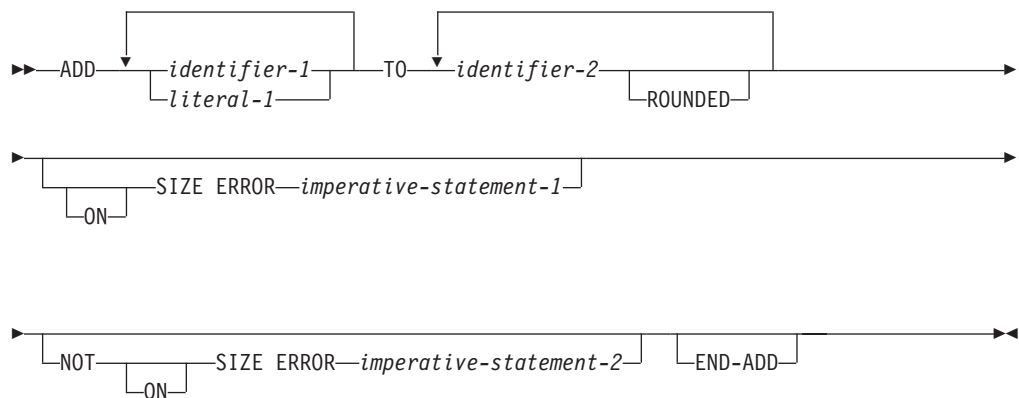


ACQUIRE Statement

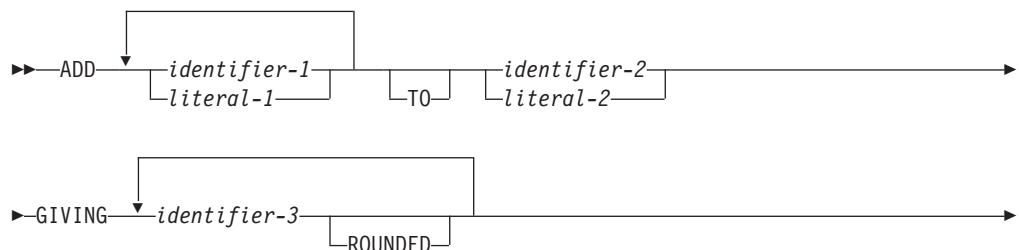


ADD Statement

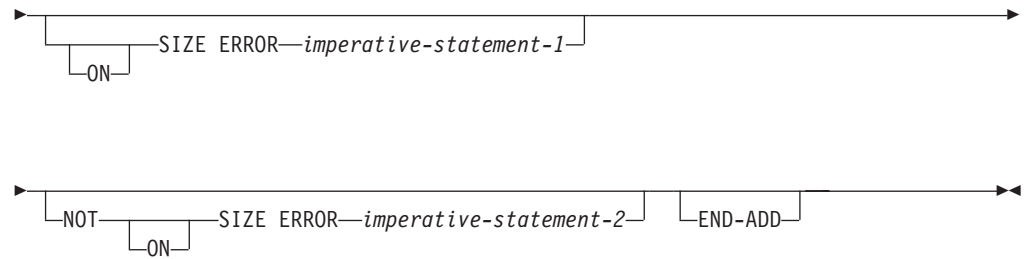
ADD Statement - Format 1 - ADD



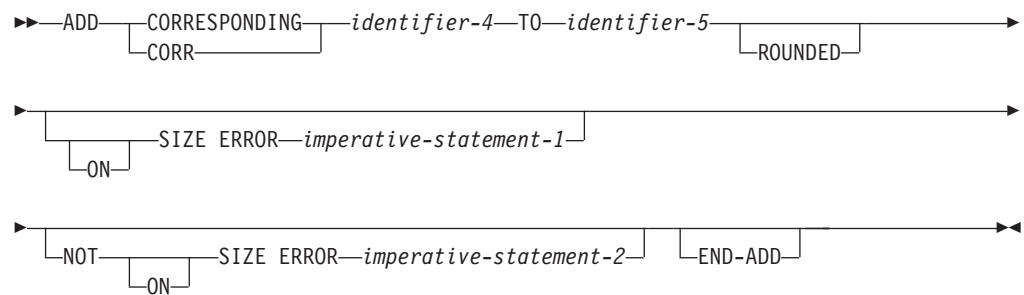
ADD Statement - Format 2 - ADD GIVING



Procedure Division Statements

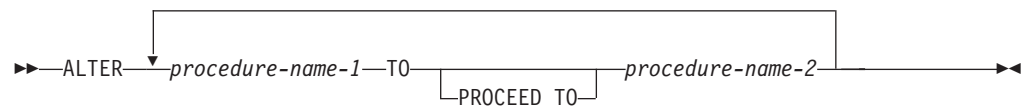


ADD Statement - Format 3 - ADD CORRESPONDING



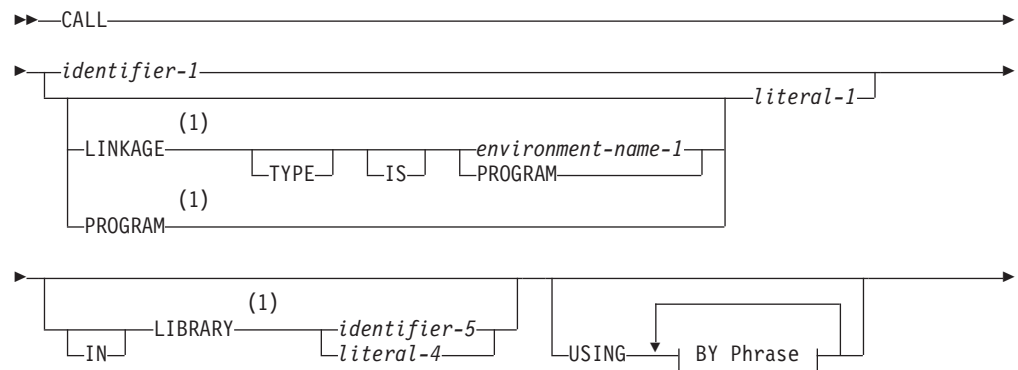
ALTER Statement

ALTER Statement - Format

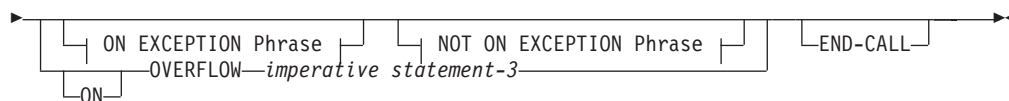


CALL Statement

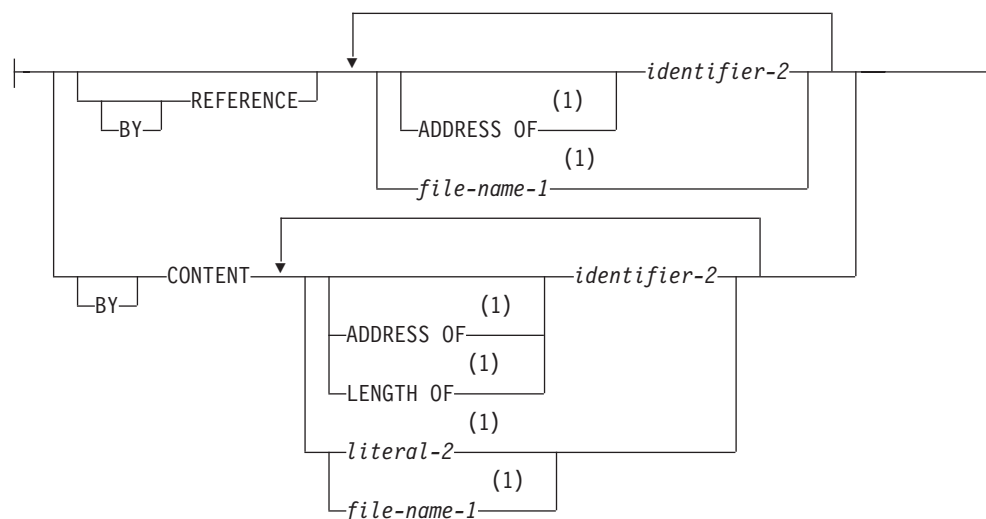
CALL Statement - Format 1



Procedure Division Statements



BY Phrase:



ON EXCEPTION Phrase:



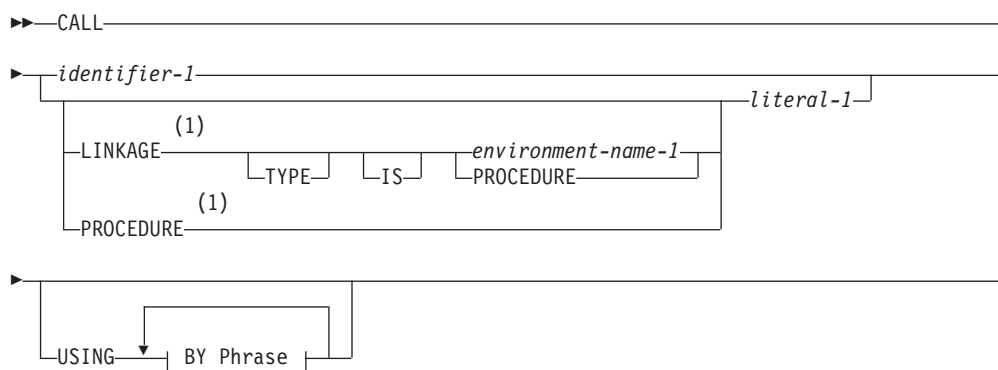
NOT ON EXCEPTION Phrase:



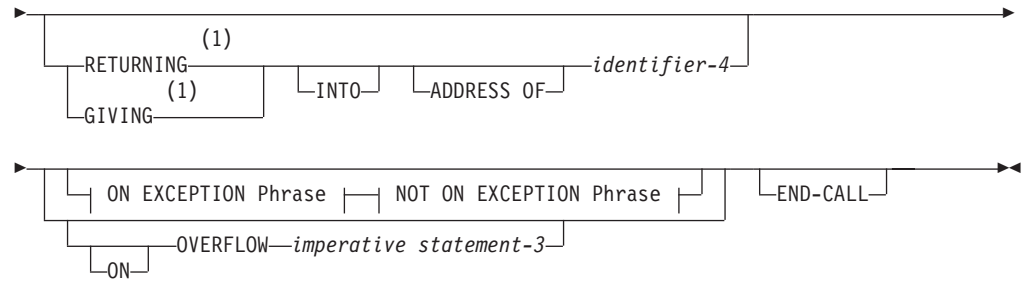
Notes:

1 IBM Extension

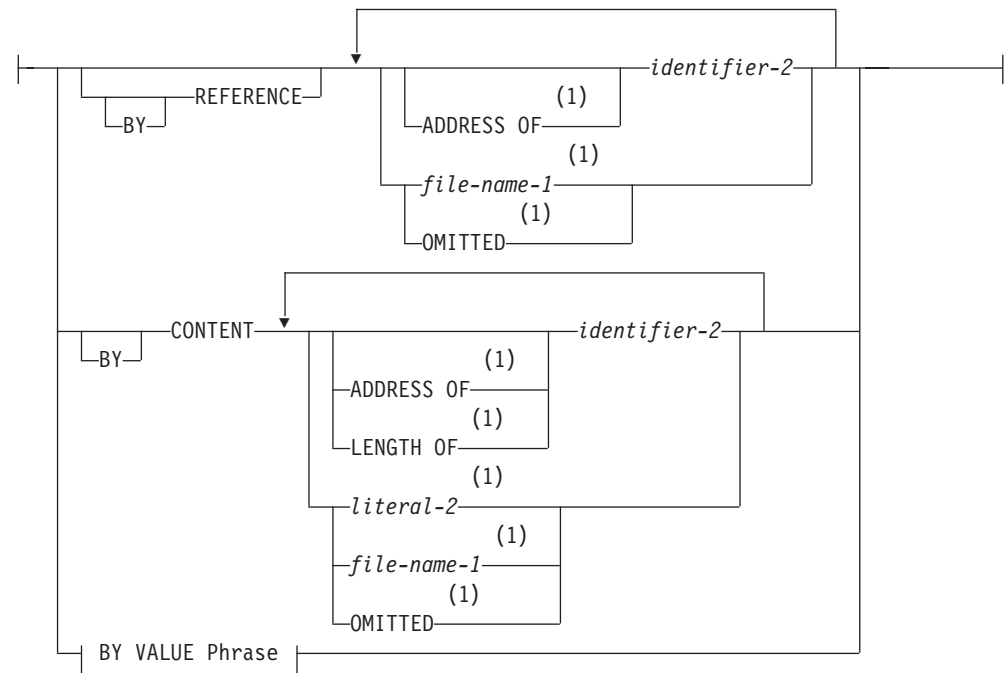
CALL Statement - Format 2



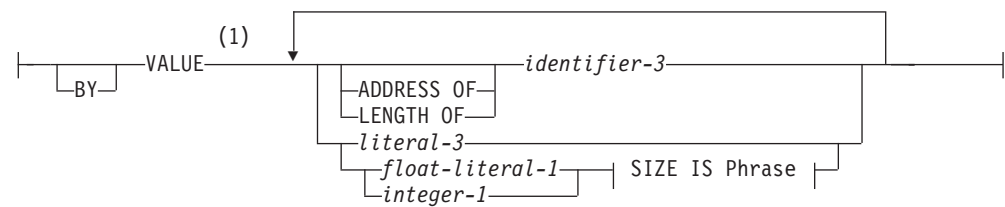
Procedure Division Statements



BY Phrase:



BY VALUE Phrase:

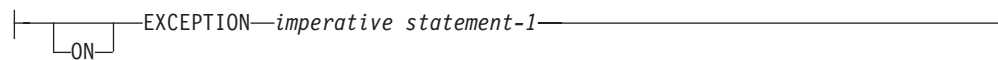


SIZE IS Phrase:



Procedure Division Statements

ON EXCEPTION Phrase:



NOT ON EXCEPTION Phrase:

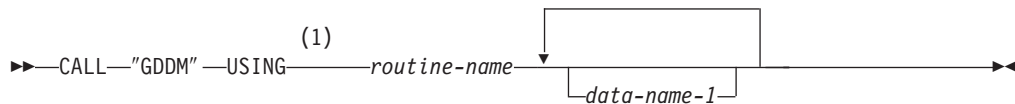


Notes:

- 1 IBM Extension



CALL GDDM Statement - Format



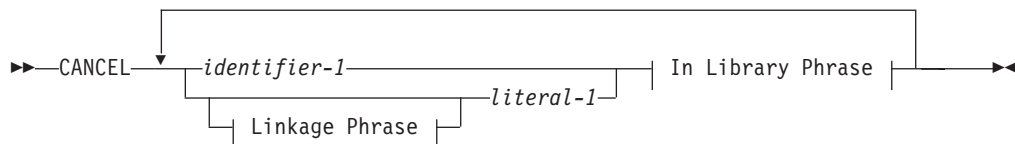
Notes:

- 1 IBM Extension

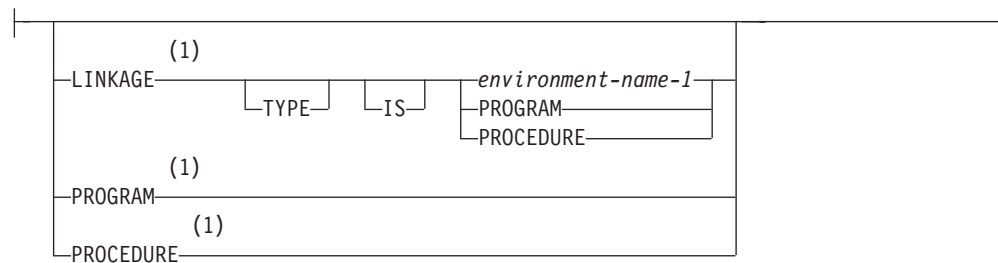


CANCEL Statement

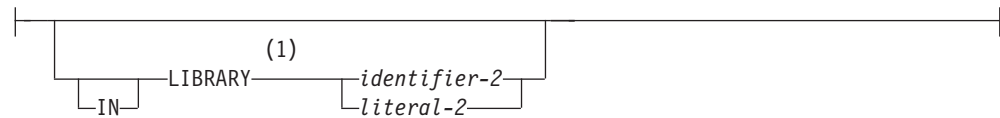
CANCEL Statement - Format



Linkage Phrase:



In Library Phrase:

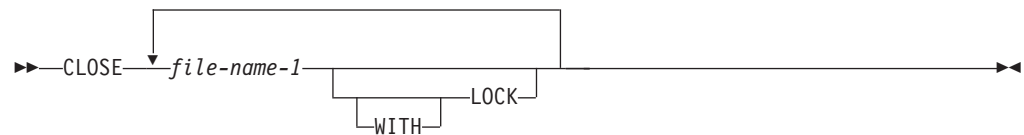


Notes:

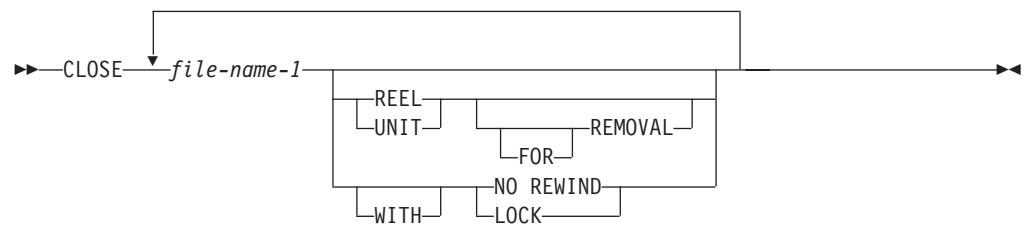
- 1 IBM Extension

CLOSE Statement

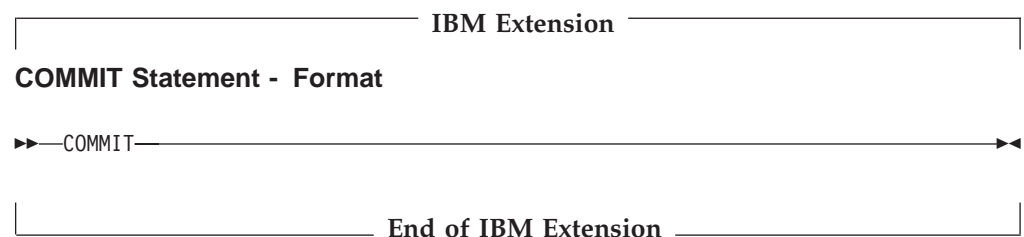
CLOSE Statement - Format 1



CLOSE Statement - Format 2 - Tape Files

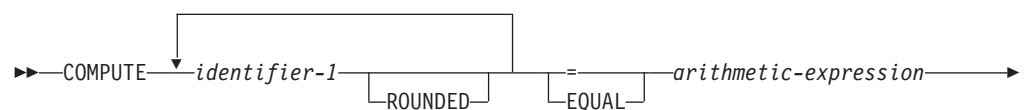


COMMIT Statement

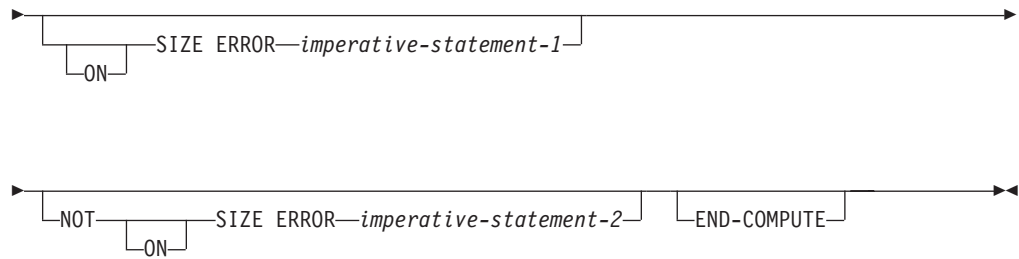


COMPUTE Statement

COMPUTE Statement - Format



Procedure Division Statements



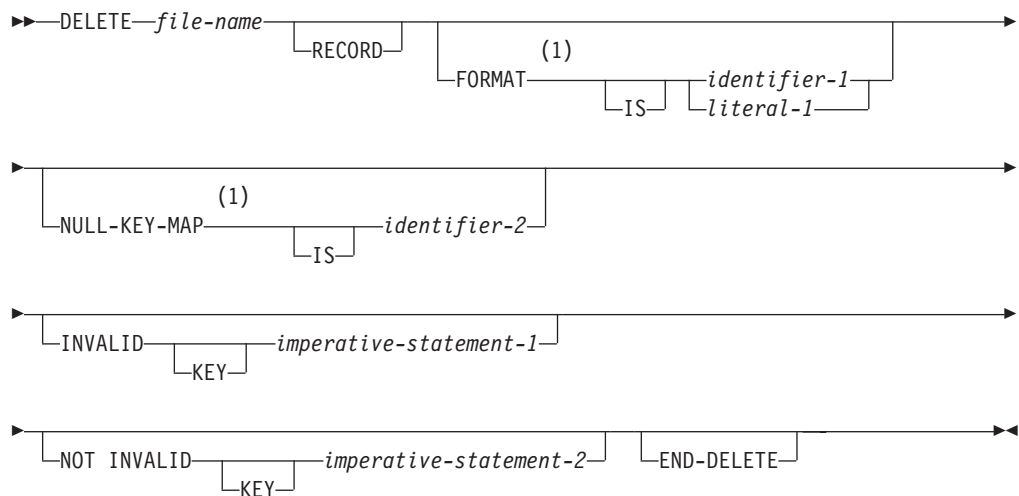
CONTINUE Statement

CONTINUE Statement - Format



DELETE Statement

DELETE Statement - Format

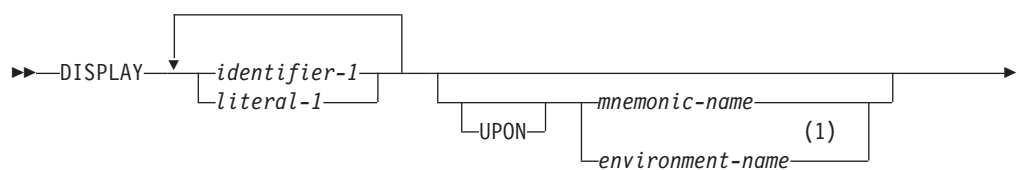


Notes:

- 1 IBM Extension

DISPLAY Statement

DISPLAY Statement - Format 1 - Data Transfer



Procedure Division Statements

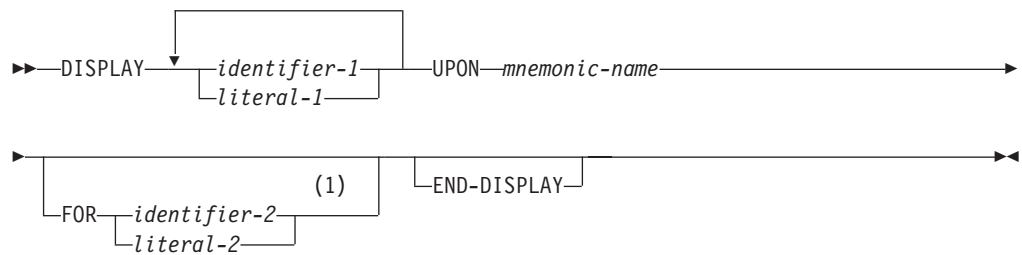


Notes:

- 1 IBM Extension
- 2 Syntax-checked only.

IBM Extension

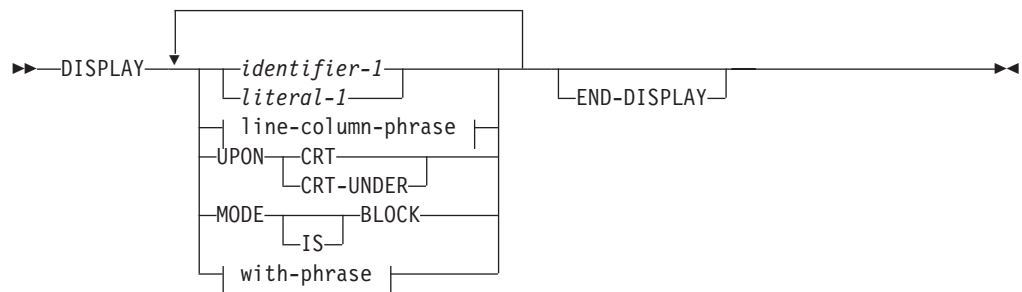
DISPLAY Statement - Format 2 - Local Data Area



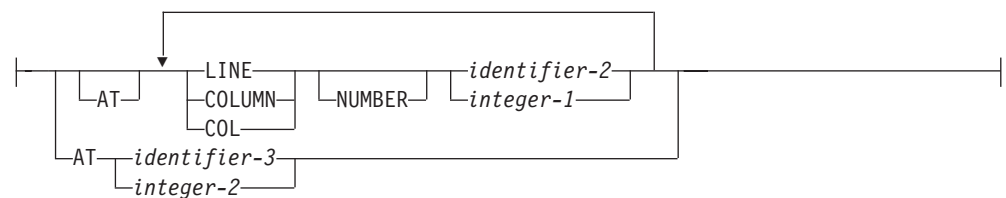
Notes:

- 1 Syntax-checked only.

DISPLAY Statement - Format 3 - Workstation I/O

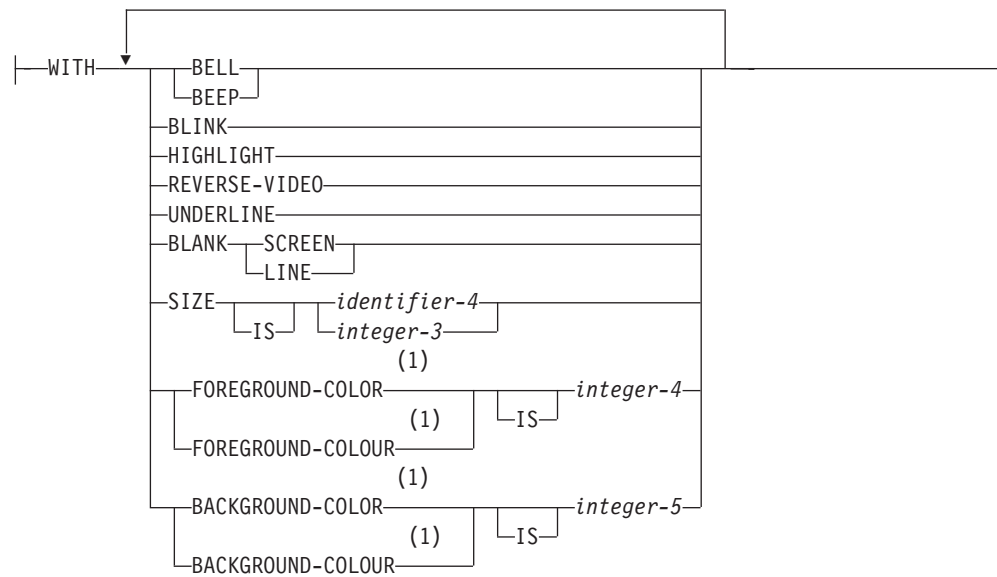


line-column-phrase:



Procedure Division Statements

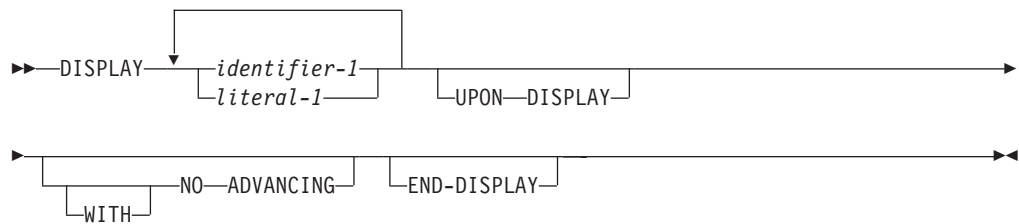
with-phrase:



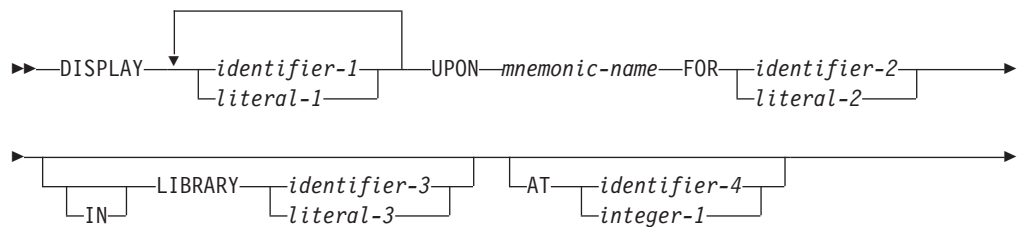
Notes:

- 1 Syntax-checked only.

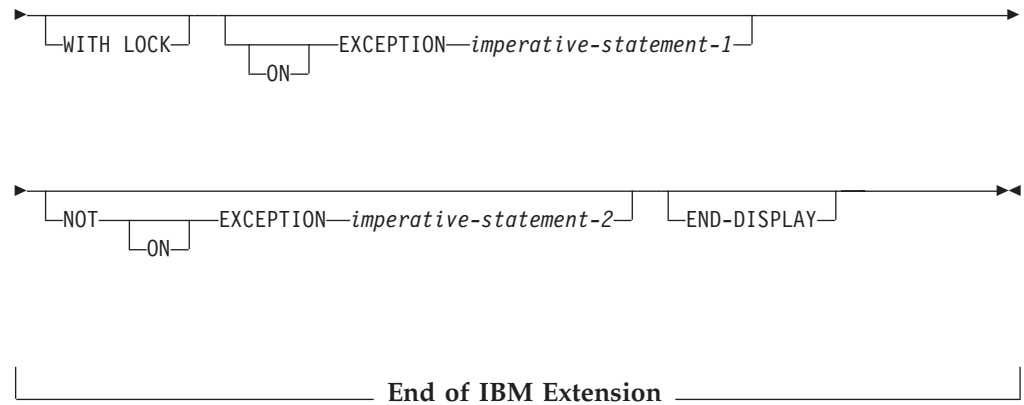
DISPLAY Statement - Format 4 - Session I/O



DISPLAY Statement - Format 5 - Data Area

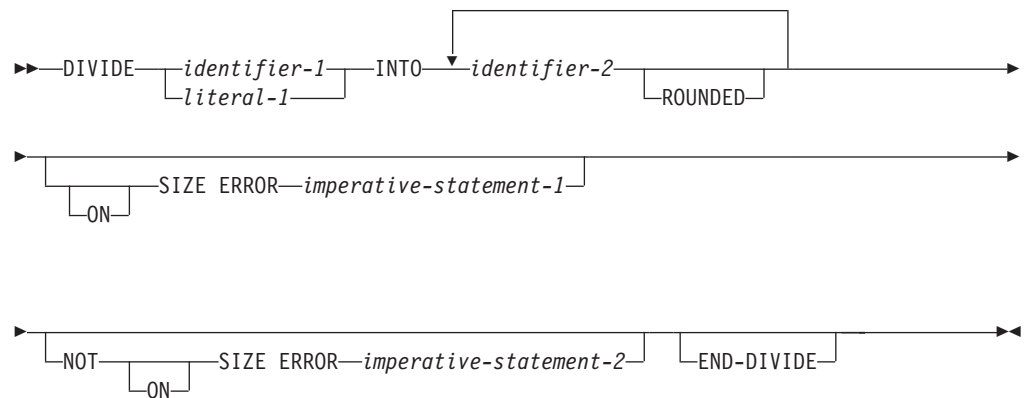


Procedure Division Statements

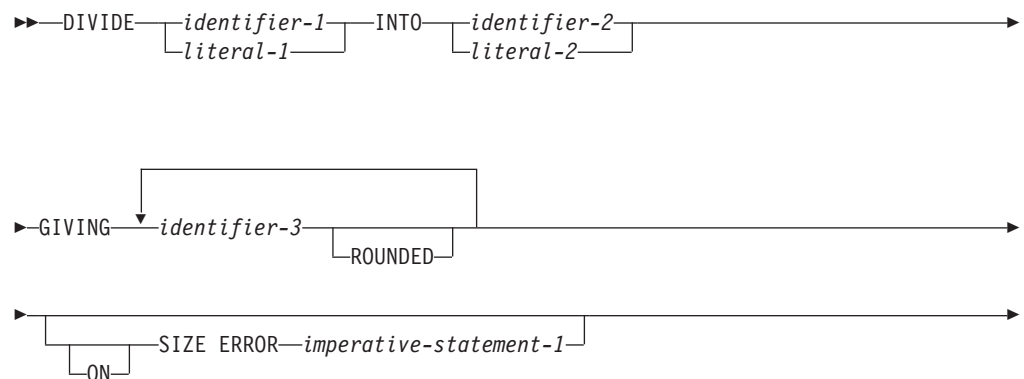


DIVIDE Statement

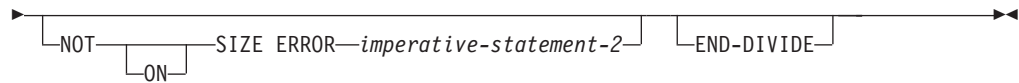
DIVIDE Statement - Format 1 - INTO



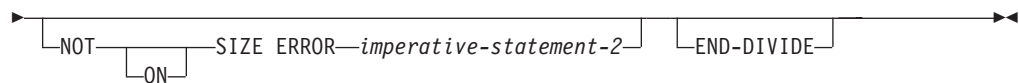
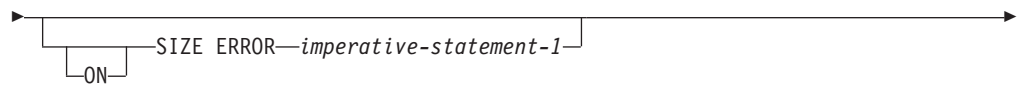
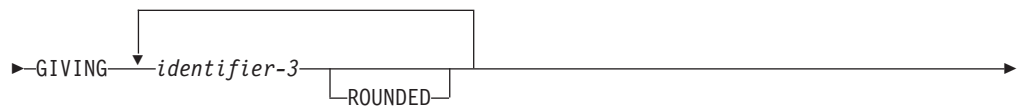
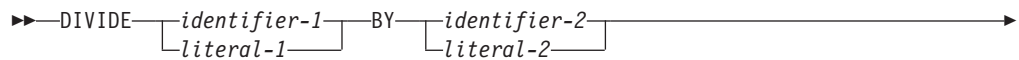
DIVIDE Statement - Format 2 - INTO GIVING



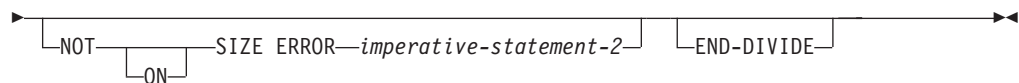
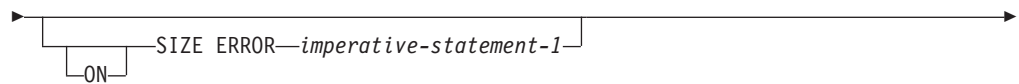
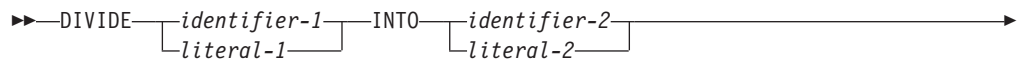
Procedure Division Statements



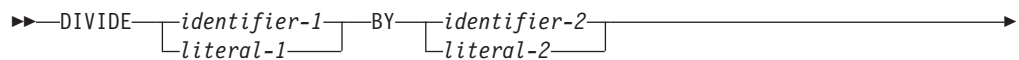
DIVIDE Statement - Format 3 - BY GIVING



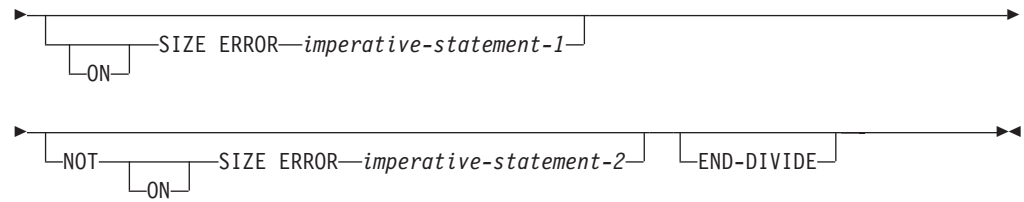
DIVIDE Statement - Format 4 - INTO GIVING REMAINDER



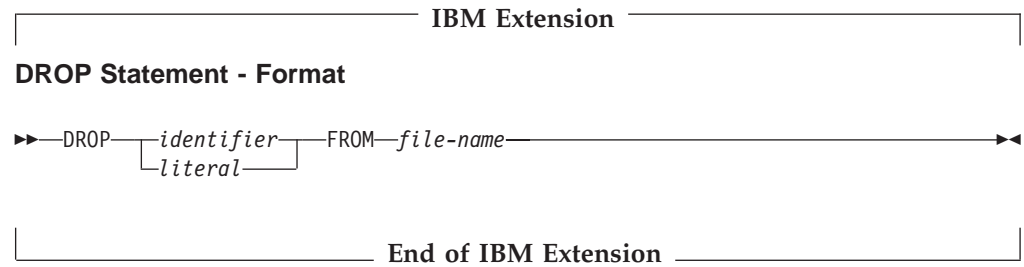
DIVIDE Statement - Format 5 - BY GIVING REMAINDER



Procedure Division Statements

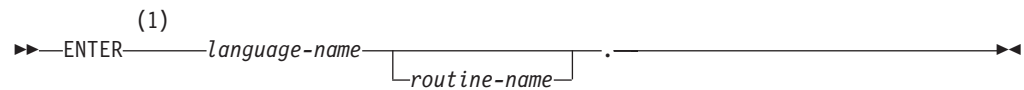


DROP Statement



ENTER Statement

ENTER Statement - Format

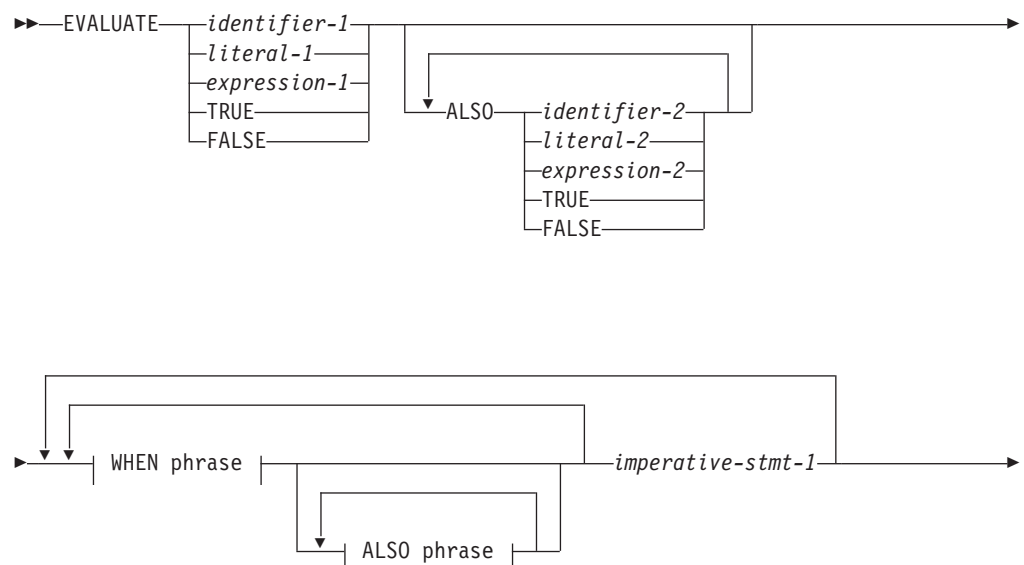


Notes:

- 1 Syntax-checked only.

EVALUATE Statement

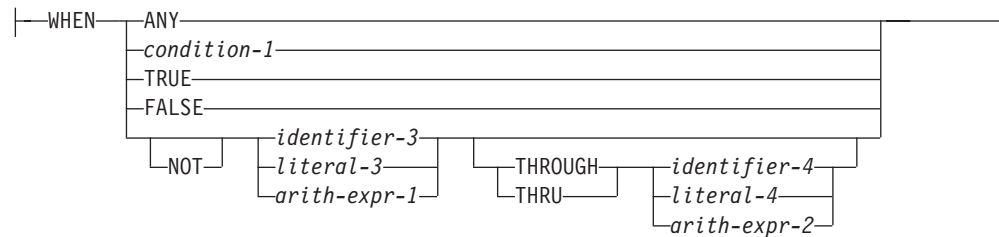
EVALUATE Statement - Format



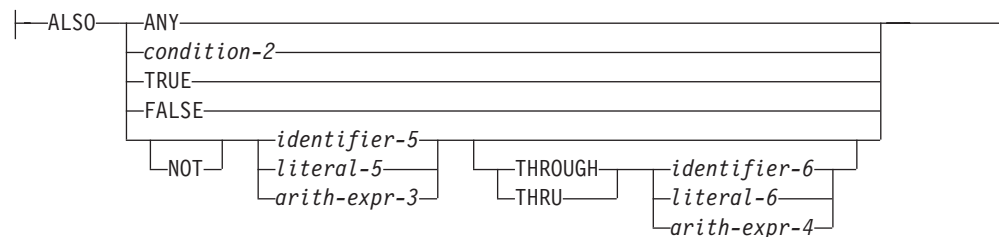
Procedure Division Statements



WHEN phrase:



ALSO phrase:



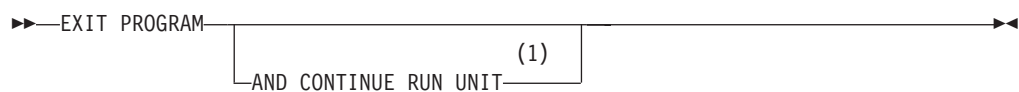
EXIT Statement

EXIT Statement - Format



EXIT PROGRAM Statement

EXIT PROGRAM Statement



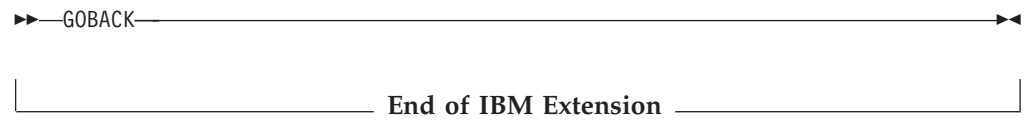
Notes:

- 1 IBM Extension

GOBACK Statement

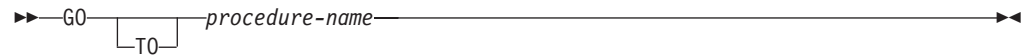


Procedure Division Statements



GO TO Statement

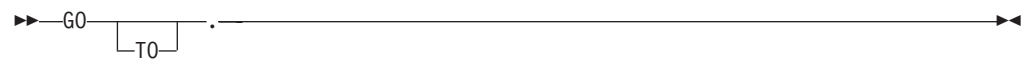
GO TO Statement - Format 1 - Unconditional



GO TO Statement - Format 2 - Conditional

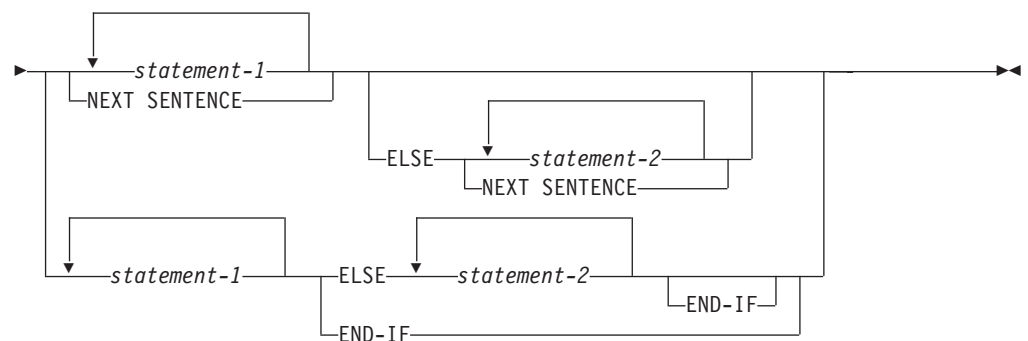
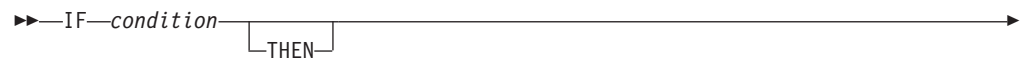


GO TO Statement - Format 3 - Altered



IF Statement

IF Statement — Format

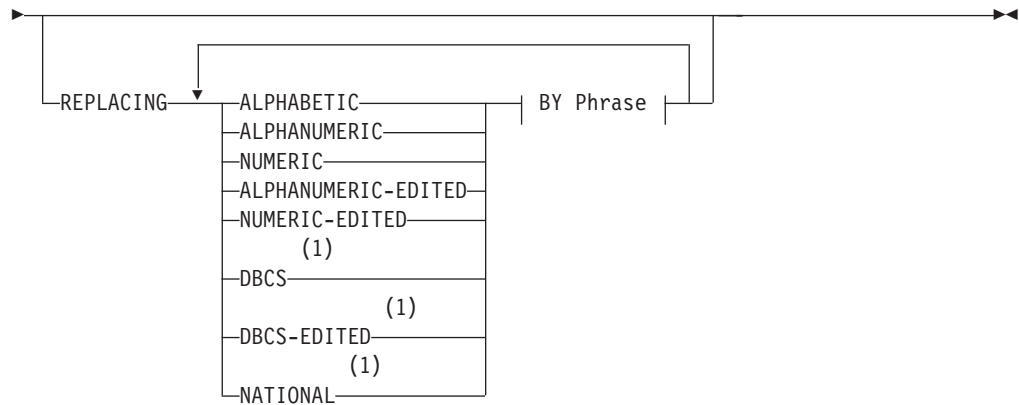


INITIALIZE Statement

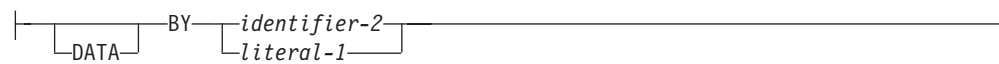
INITIALIZE Statement - Format



Procedure Division Statements



BY Phrase:

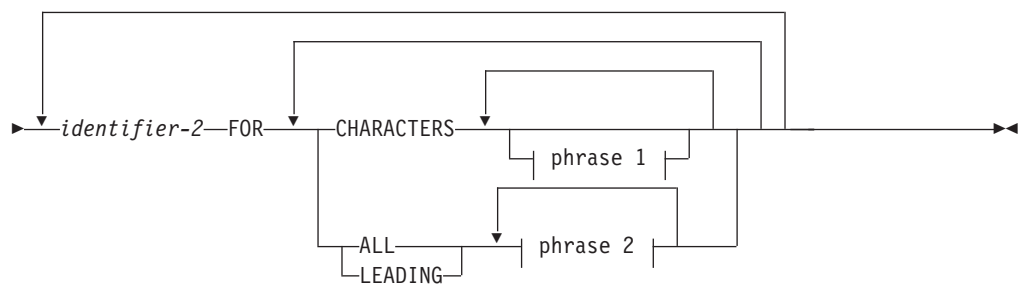


Notes:

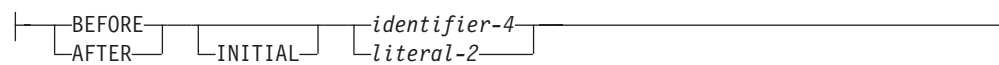
- 1 IBM Extension

INSPECT Statement

INSPECT Statement - Format 1

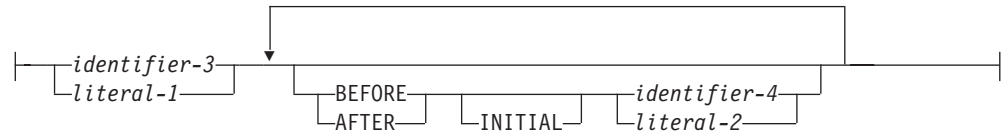


phrase 1:



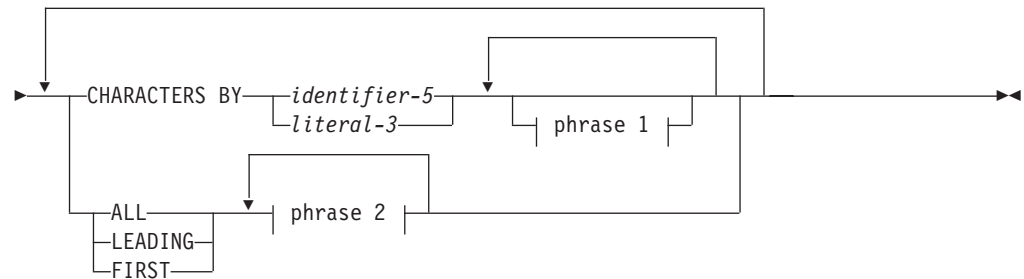
phrase 2:

Procedure Division Statements

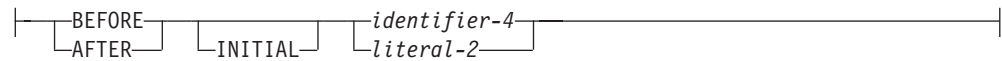


INSPECT Statement - Format 2

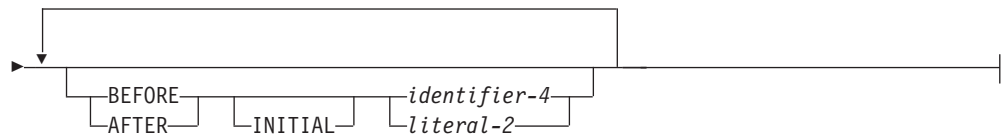
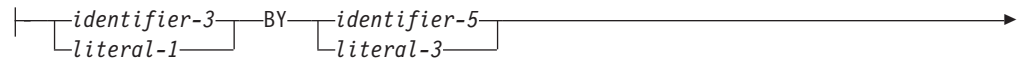
►►—INSPECT—*identifier-1*—REPLACING—►



phrase 1:



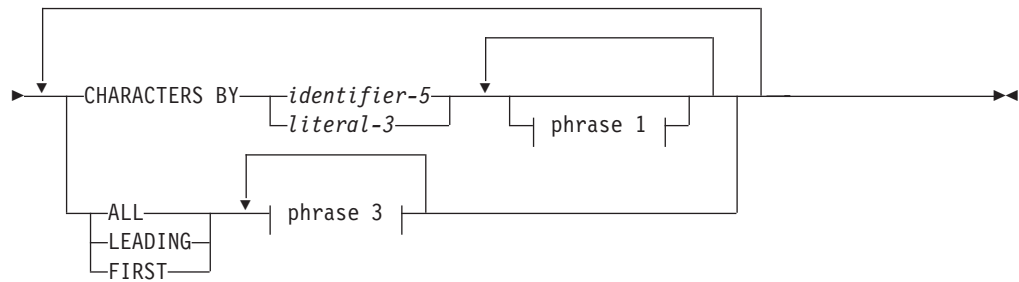
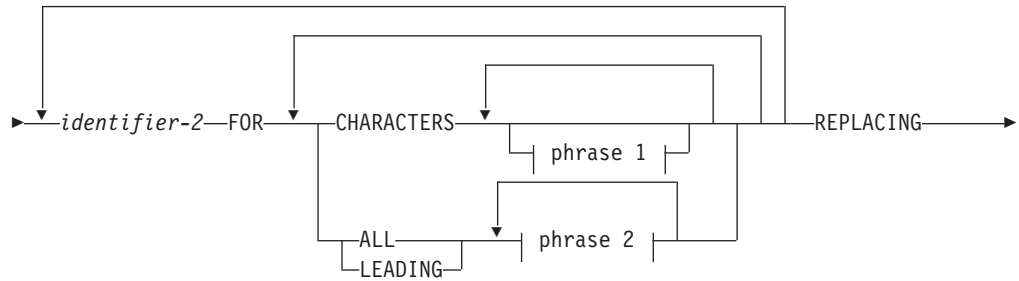
phrase 2:



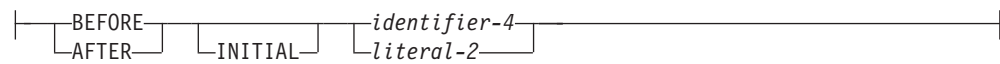
INSPECT Statement - Format 3

►►—INSPECT—*identifier-1*—TALLYING—►

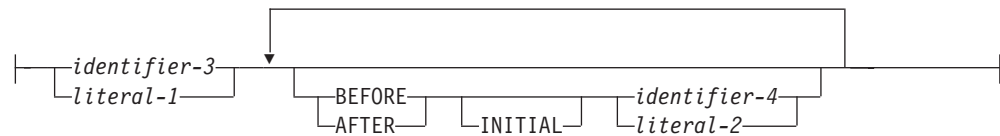
Procedure Division Statements



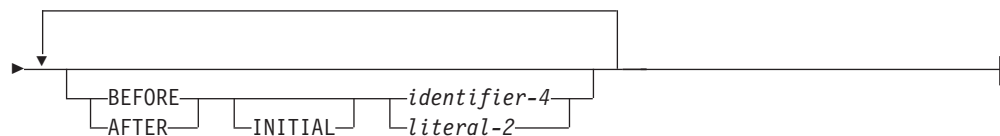
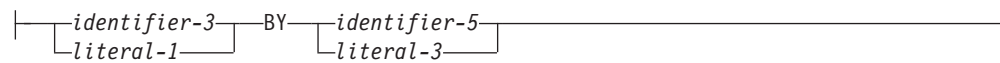
phrase 1:



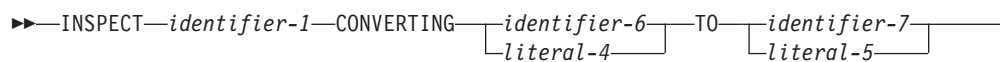
phrase 2:



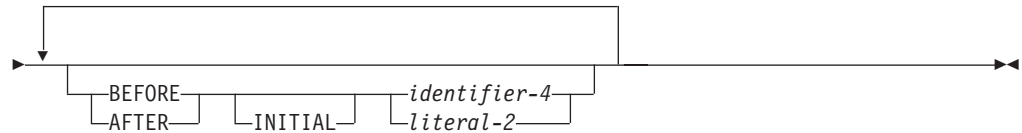
phrase 3:



INSPECT Statement - Format 4

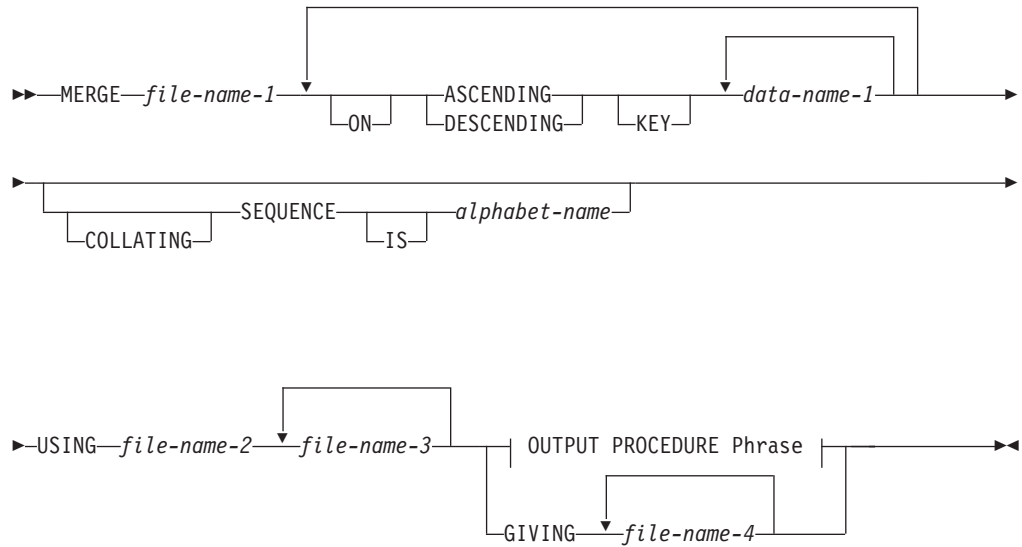


Procedure Division Statements

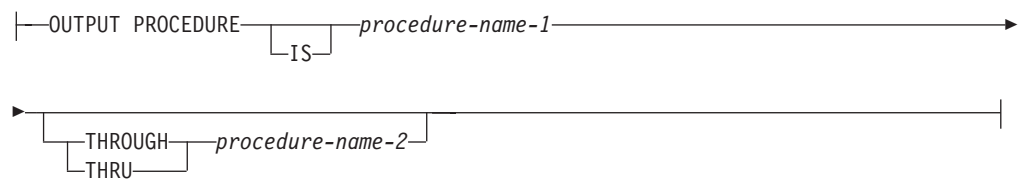


MERGE Statement

MERGE Statement — Format

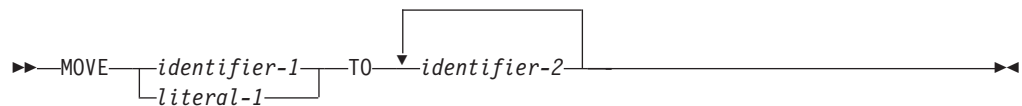


OUTPUT PROCEDURE Phrase:

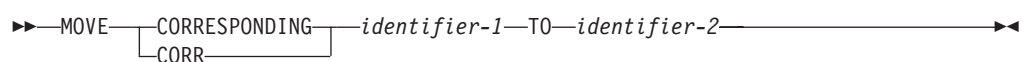


MOVE Statement

MOVE Statement - Format 1



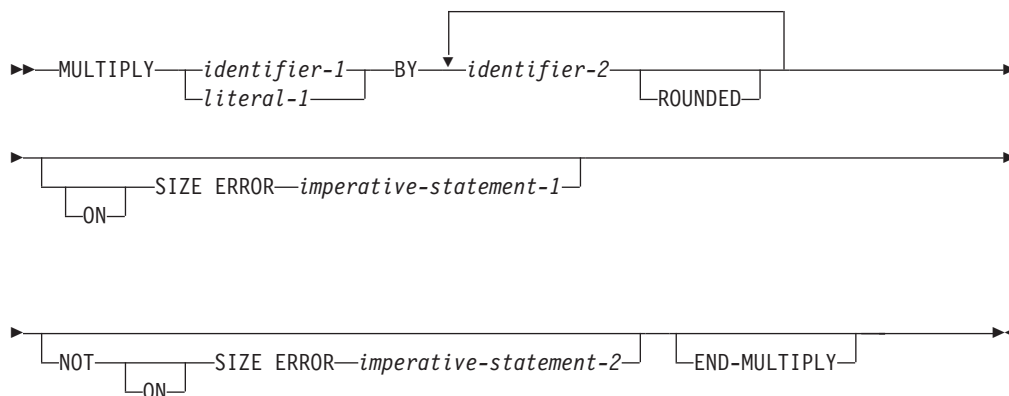
MOVE Statement — Format 2



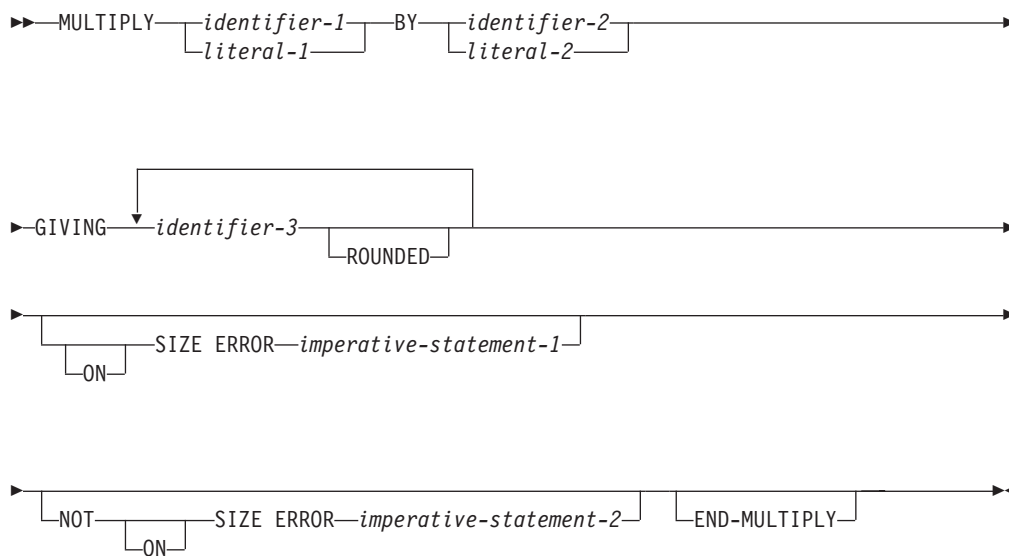
Procedure Division Statements

MULTIPLY Statement

MULTIPLY Statement - Format 1



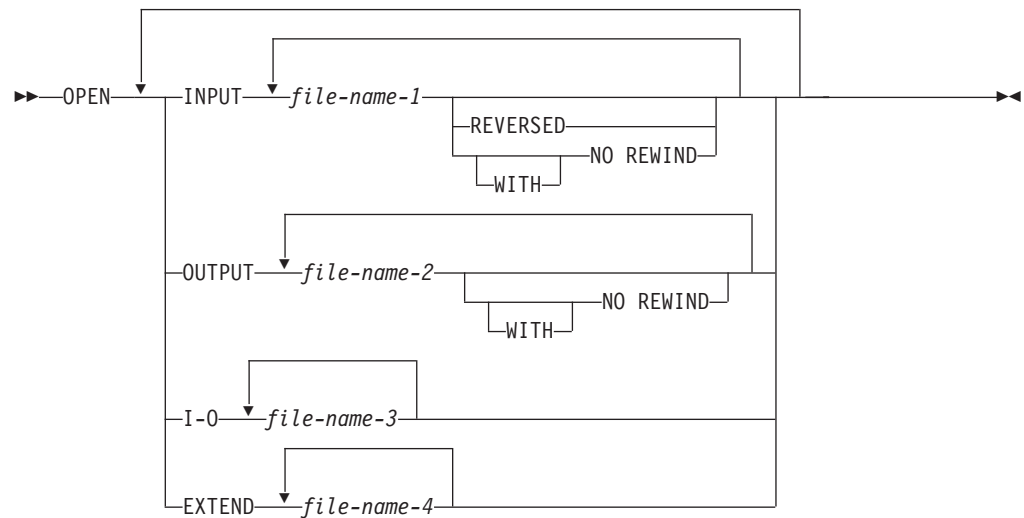
MULTIPLY Statement - Format 2 - GIVING



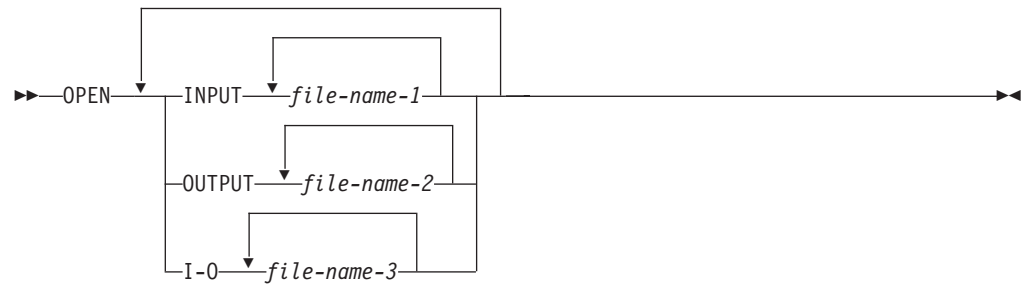
OPEN Statement

OPEN Statement — Format 1 — Sequential

Procedure Division Statements



OPEN Statement - Format 2 - Indexed and Relative



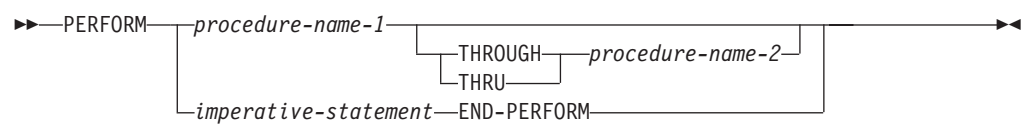
IBM Extension

OPEN Statement - Format 3 - TRANSACTION



PERFORM Statement

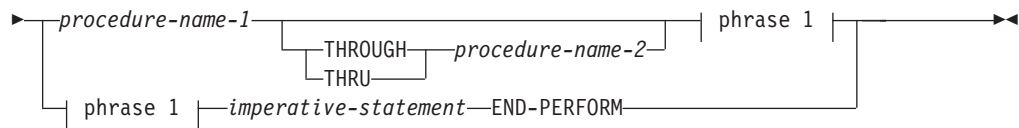
PERFORM Statement - Format 1



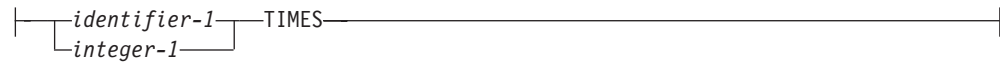
PERFORM Statement - Format 2



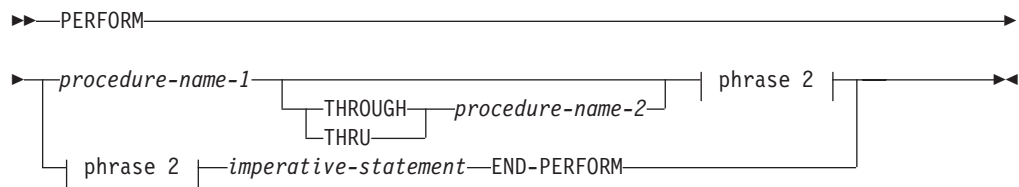
Procedure Division Statements



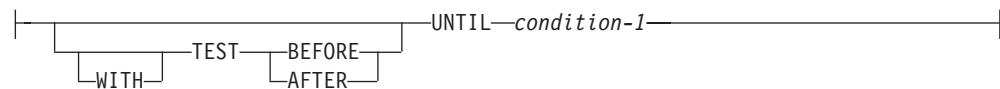
phrase-1:



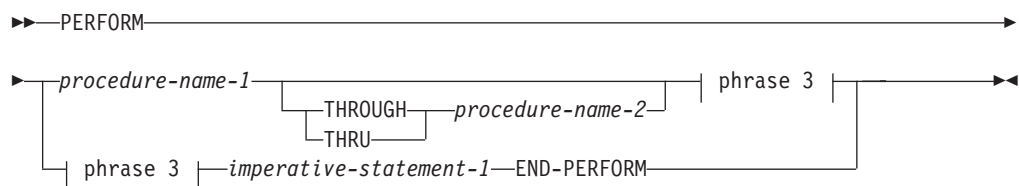
PERFORM Statement - Format 3



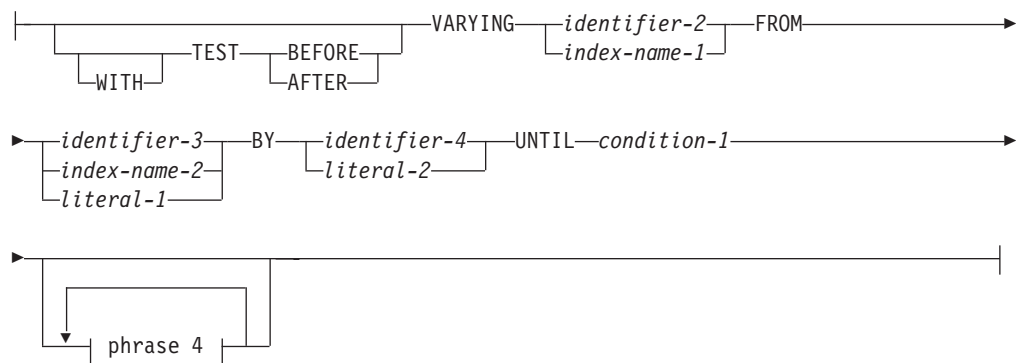
phrase 2:



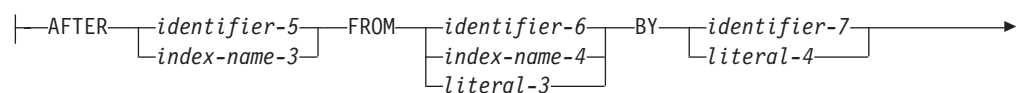
PERFORM Statement - Format 4



phrase 3:



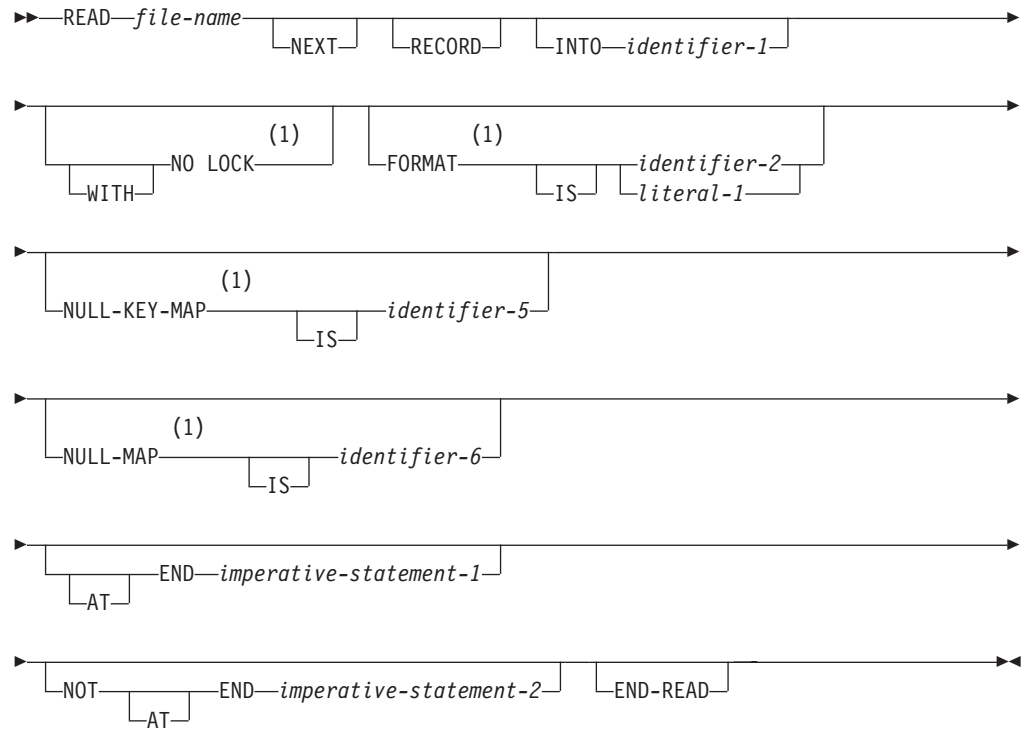
phrase 4:



► ~~UNTIL~~ *condition-2* _____|

READ Statement

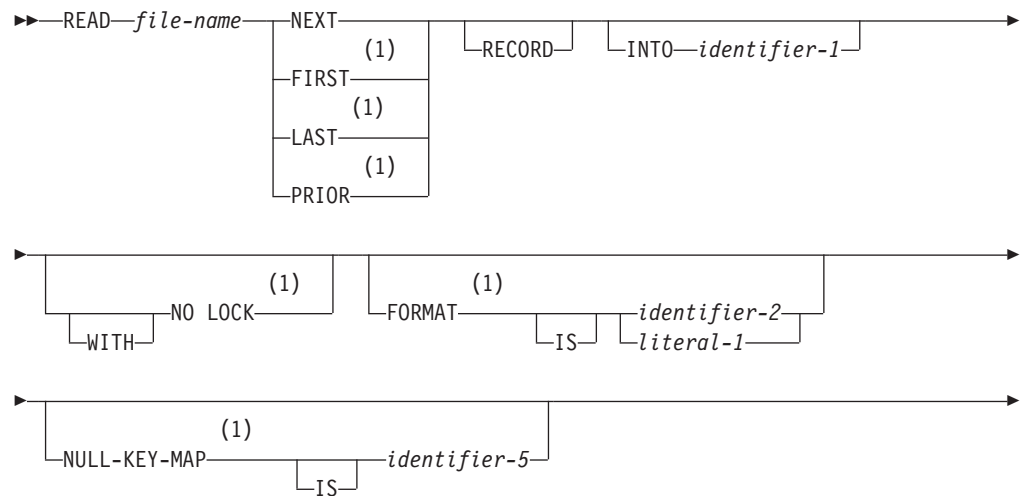
READ - Format 1 - Sequential Retrieval/Access



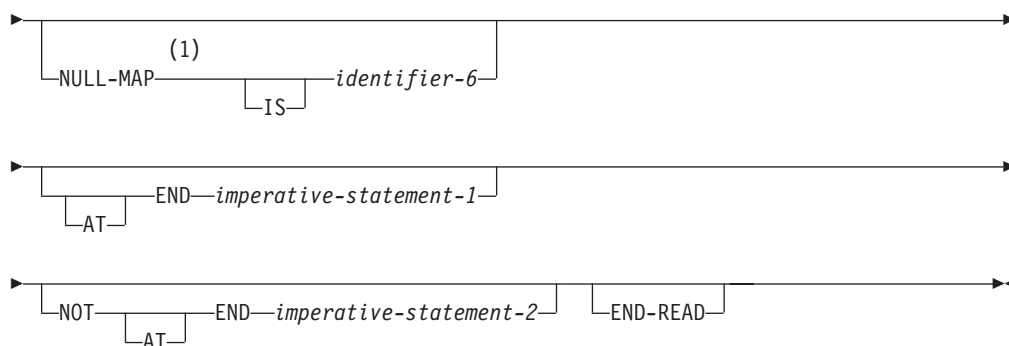
Notes:

1 IBM Extension.

READ - Format 2 - Sequential Ret./Dynamic Access



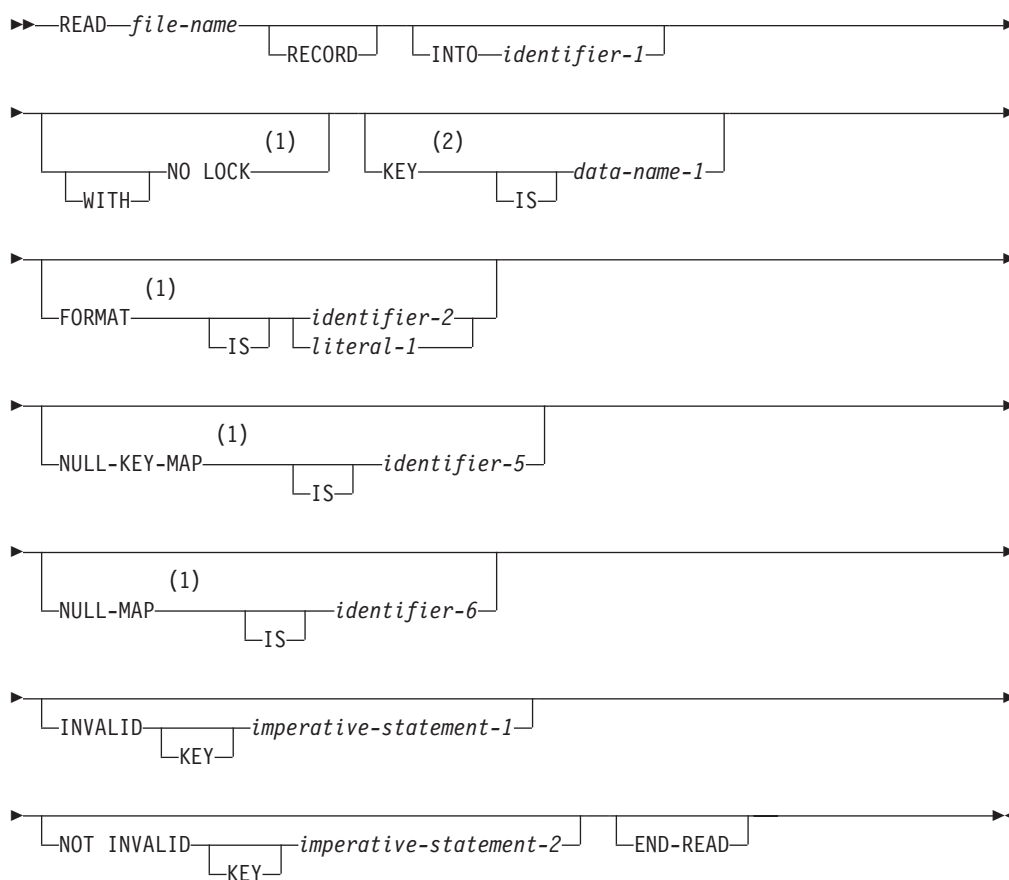
Procedure Division Statements



Notes:

1 IBM Extension

READ Statement - Format 3 - Random Retrieval



Notes:

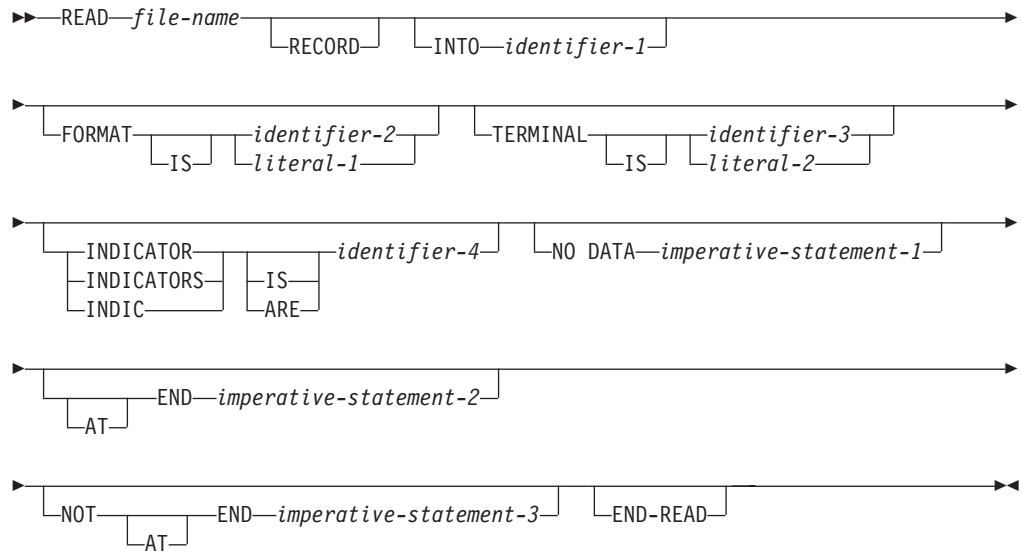
1 IBM Extension

2 Syntax-checked only.

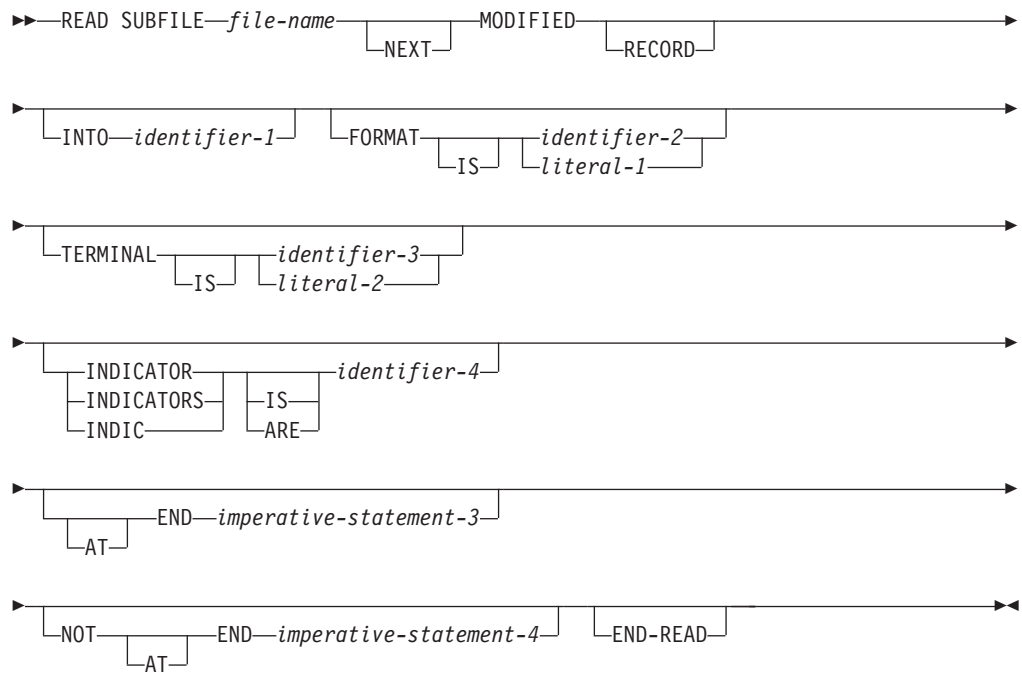
Procedure Division Statements

IBM Extension

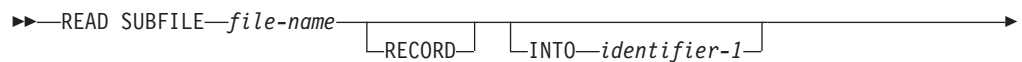
READ Statement - Format 4 - Transaction (Nonsubfile)



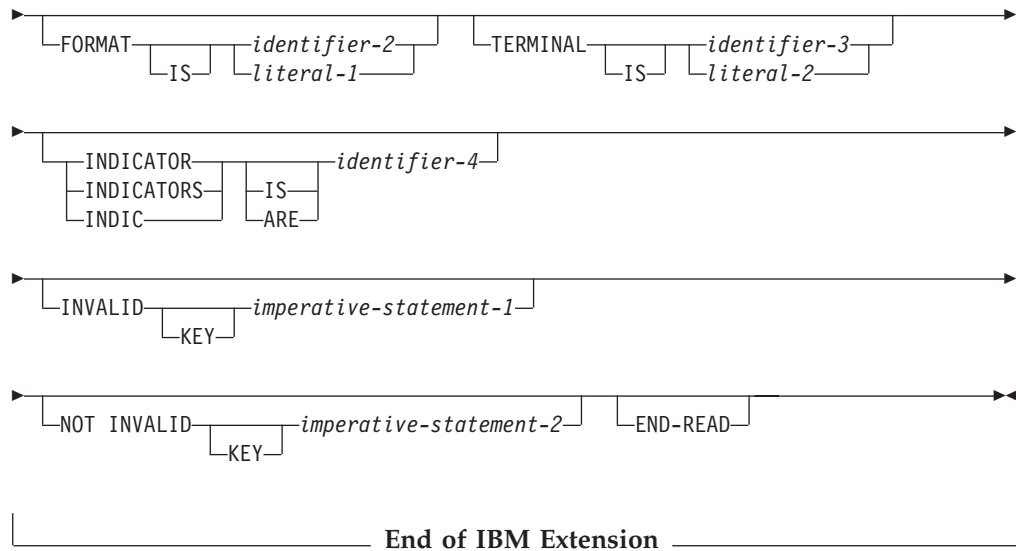
READ - Format 5a - Transaction (Subfile Sequential)



READ - Format 5b - Transaction (Subfile Random)



Procedure Division Statements



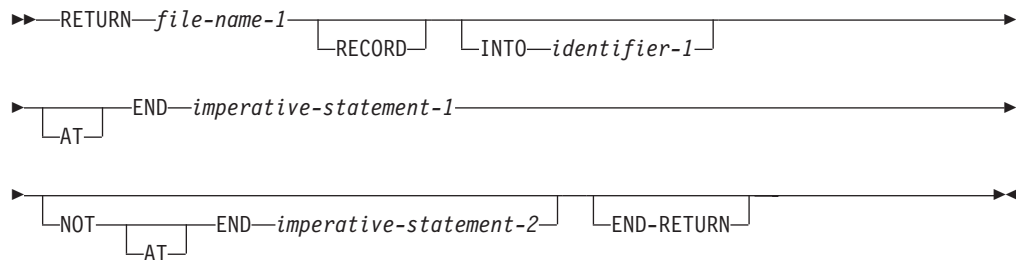
RELEASE Statement

RELEASE Statement - Format



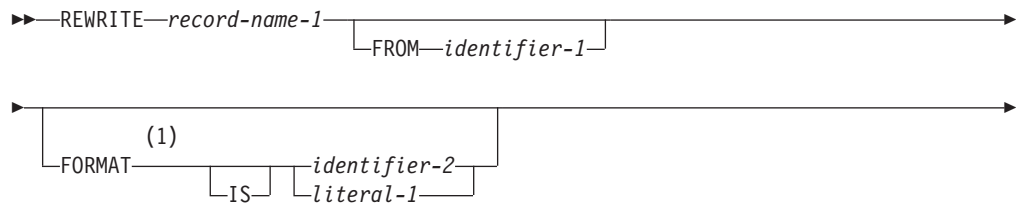
RETURN Statement

RETURN Statement - Format

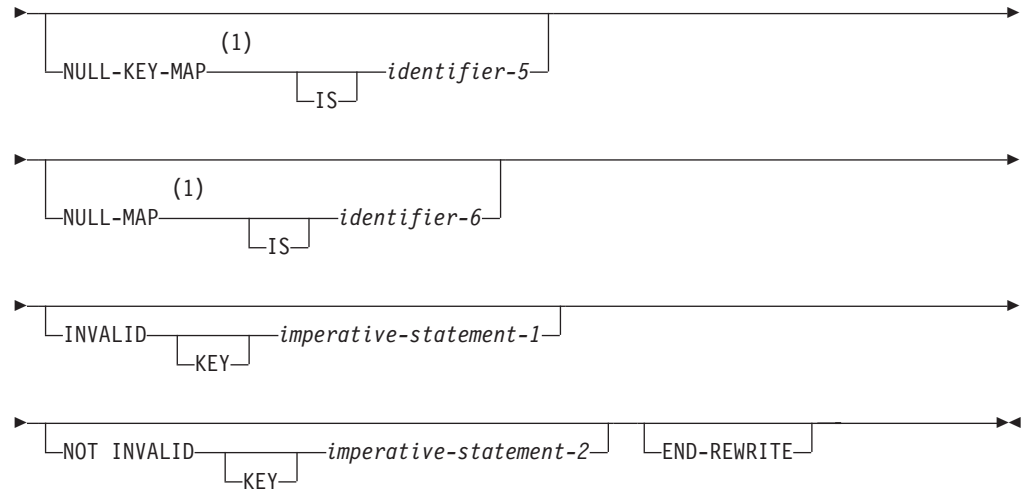


REWRITE Statement

REWRITE Statement - Format 1

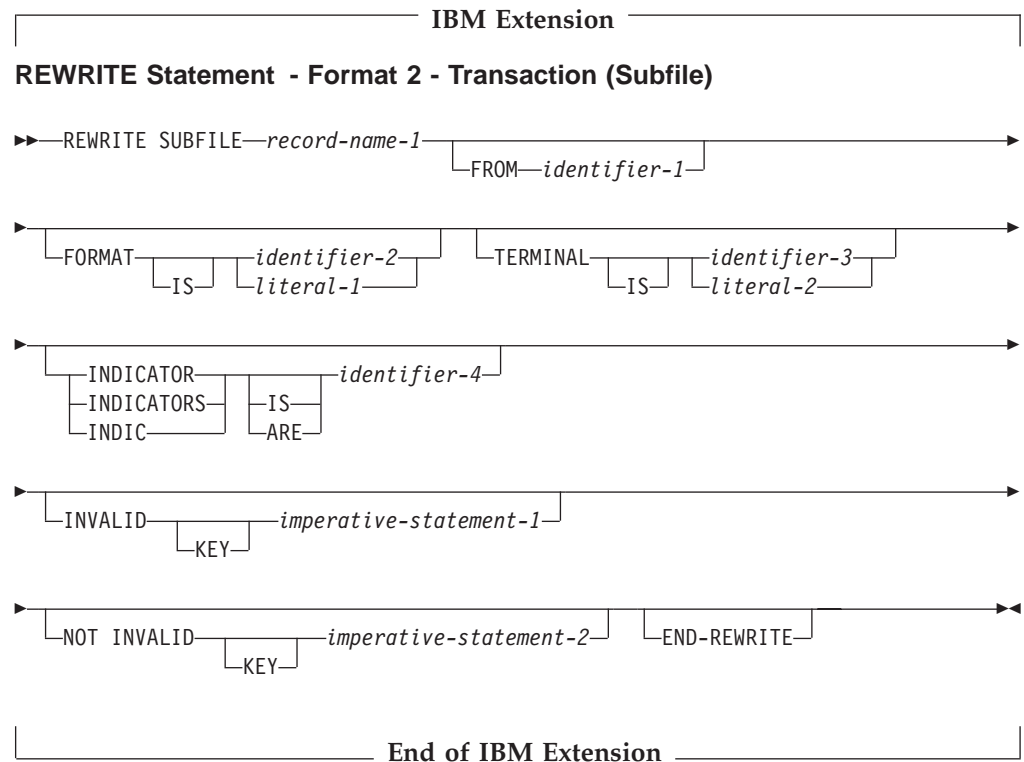


Procedure Division Statements

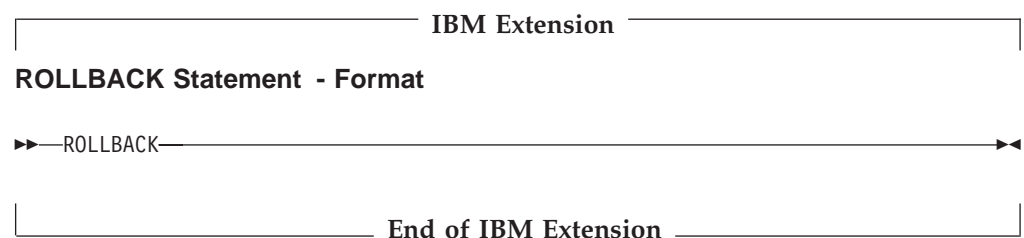


Notes:

- 1 IBM Extension



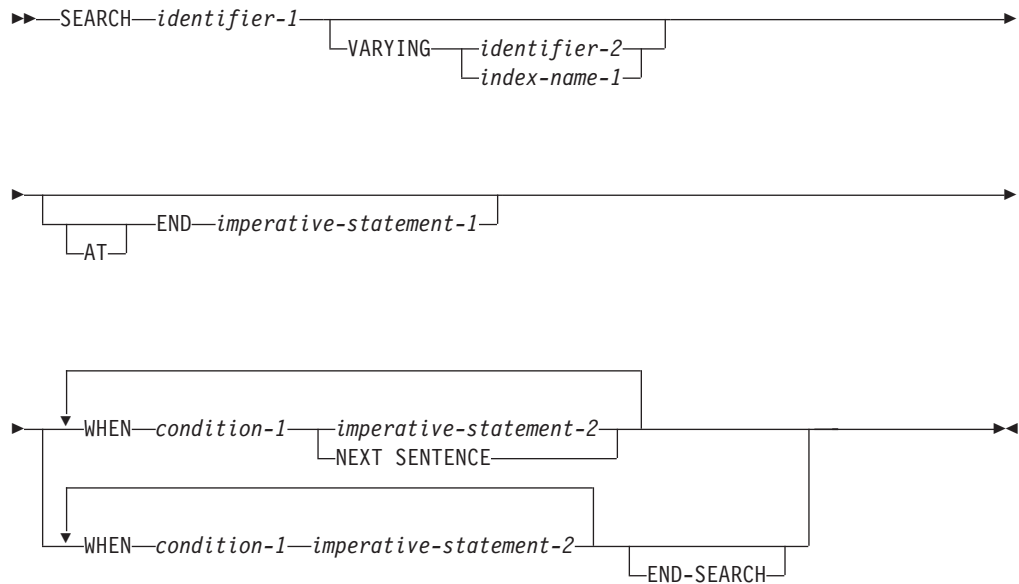
ROLLBACK Statement



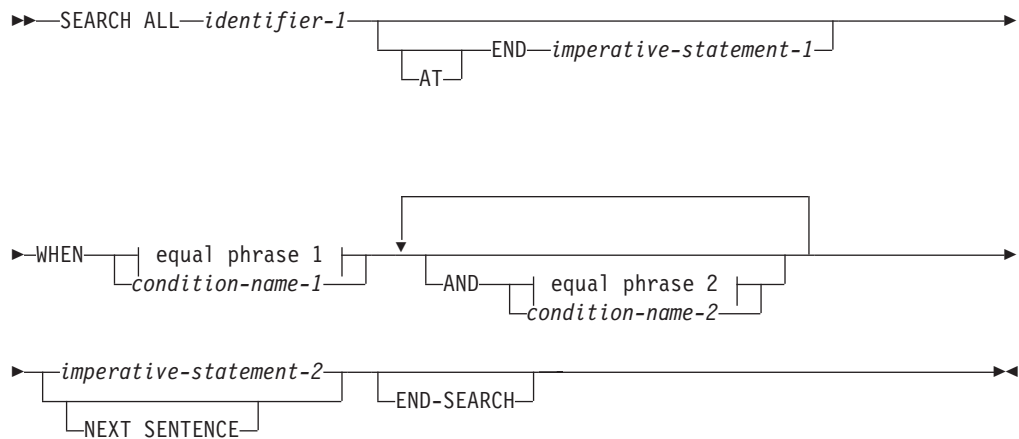
Procedure Division Statements

SEARCH Statement

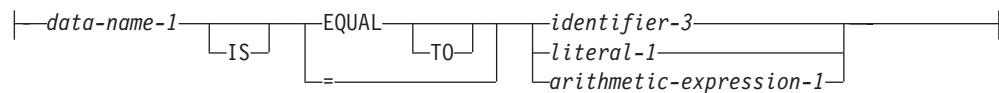
SEARCH Statement - Format 1 - Serial Search



SEARCH Statement - Format 2 - Binary Search



equal phrase 1:

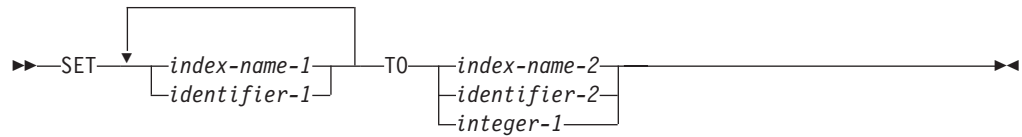


equal phrase 2:

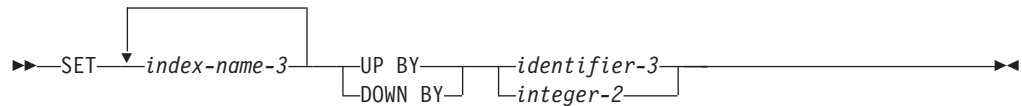


SET Statement

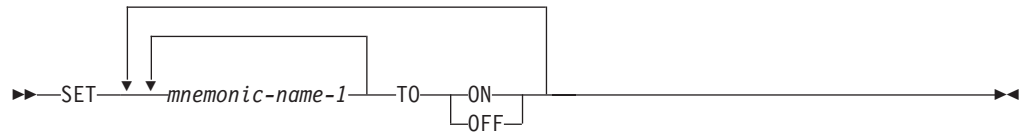
SET Statement - Format 1



SET Statement - Format 2



SET Statement - Format 3

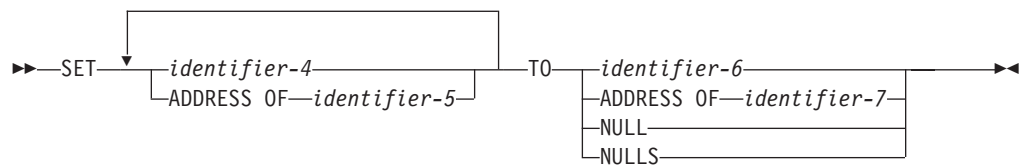


SET Statement - Format 4

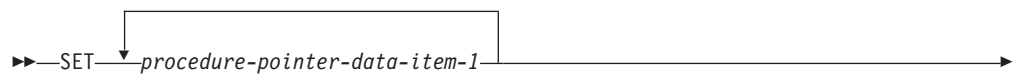


IBM Extension

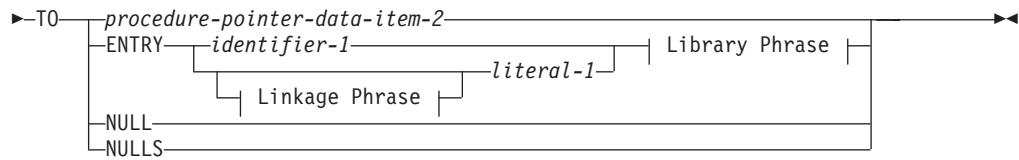
SET Statement - Format 5



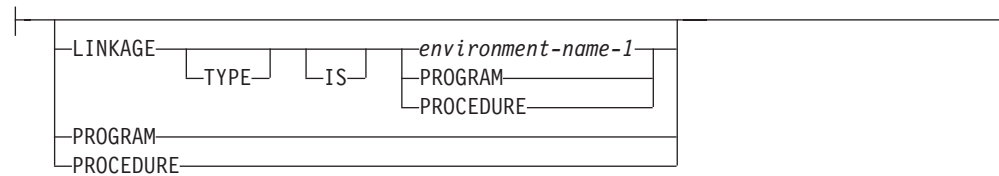
SET Statement - Format 6



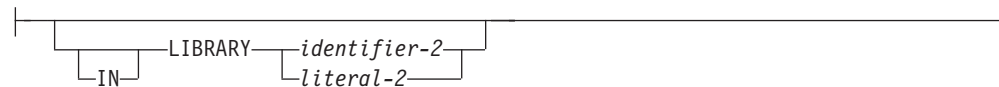
Procedure Division Statements



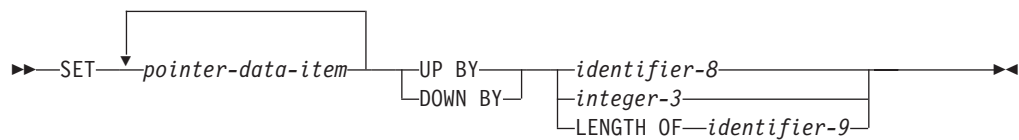
Linkage Phrase:



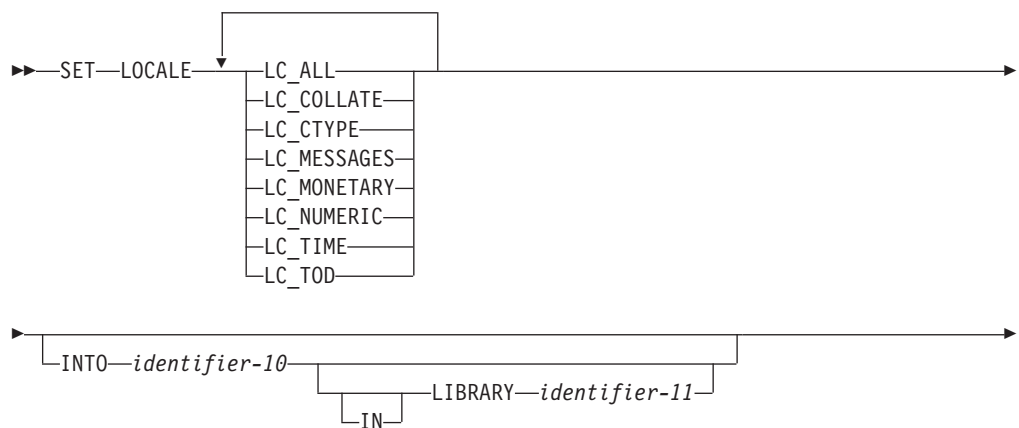
Library Phrase:



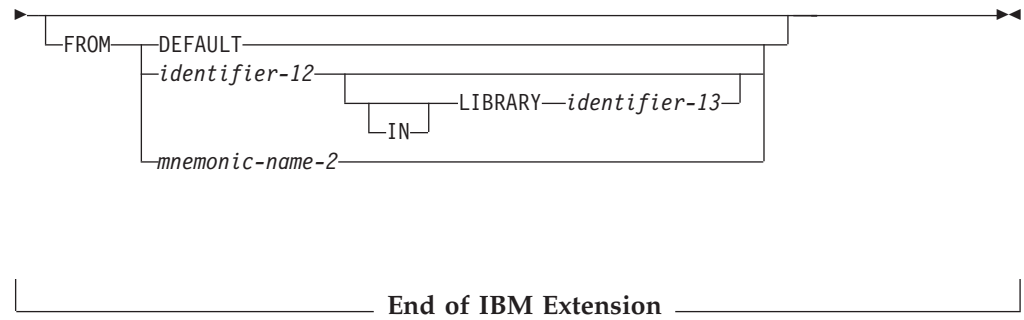
SET Statement - Format 7



Set Statement - Format 8

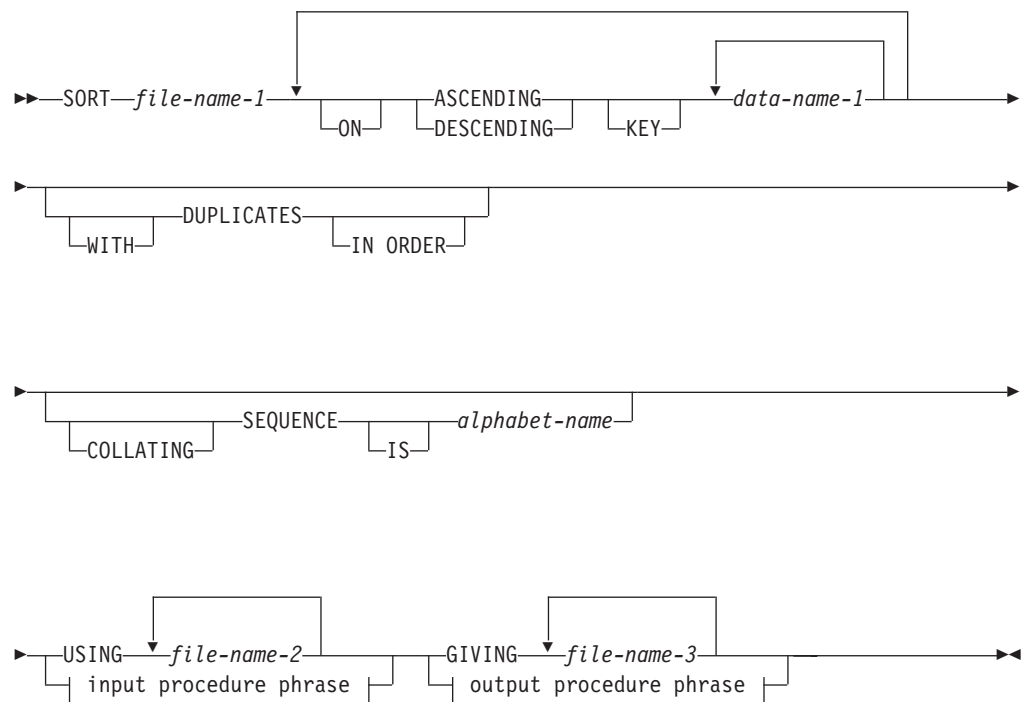


Procedure Division Statements

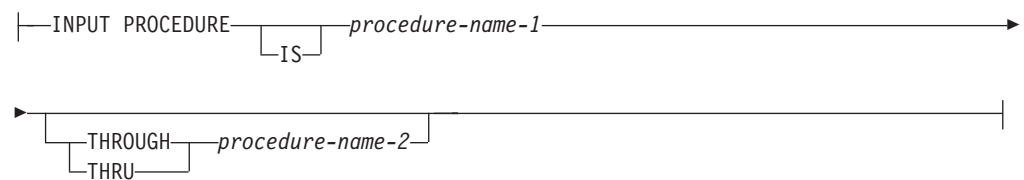


SORT Statement

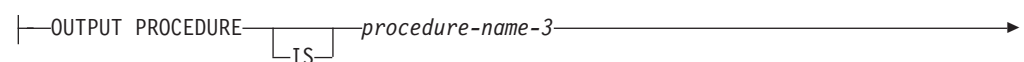
SORT Statement - Format



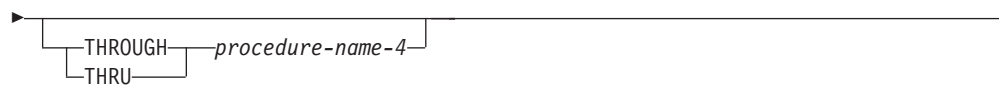
input procedure phrase:



output procedure phrase:

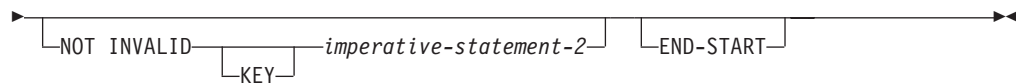
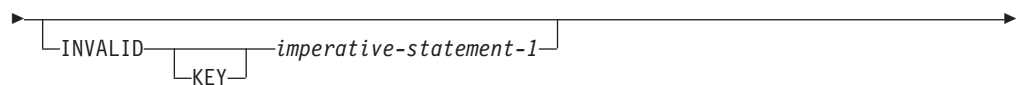
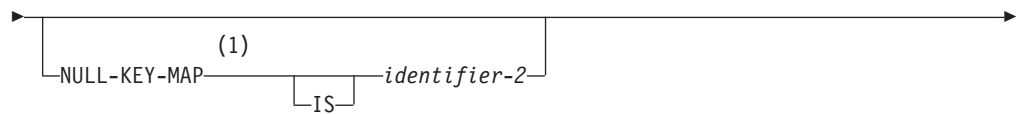
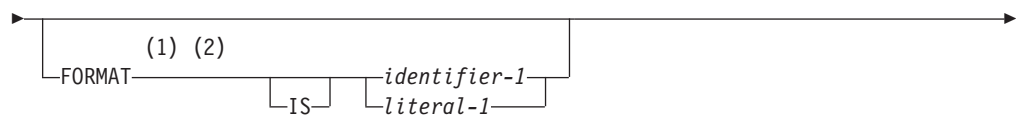
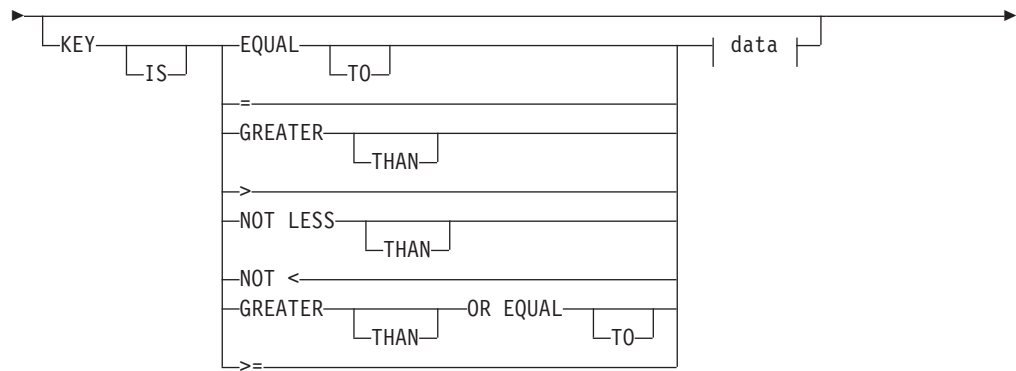
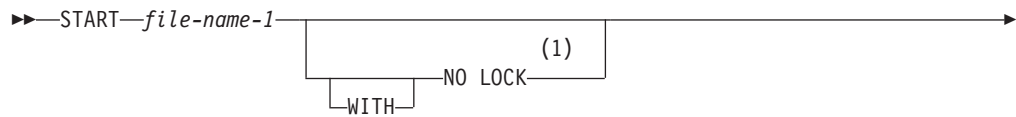


Procedure Division Statements

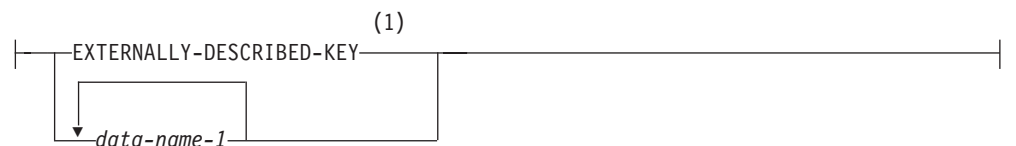


START Statement

START Statement - Format



data:



Notes:

- 1 IBM Extension
- 2 Applies only to indexed files on DATABASE devices

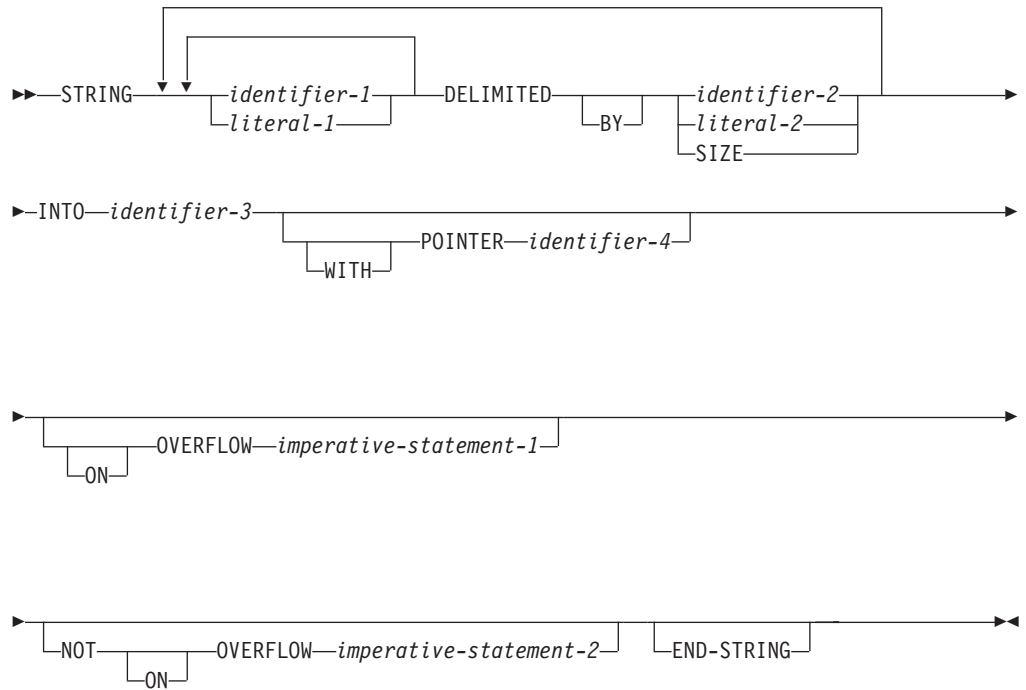
STOP Statement

STOP Statement - Format



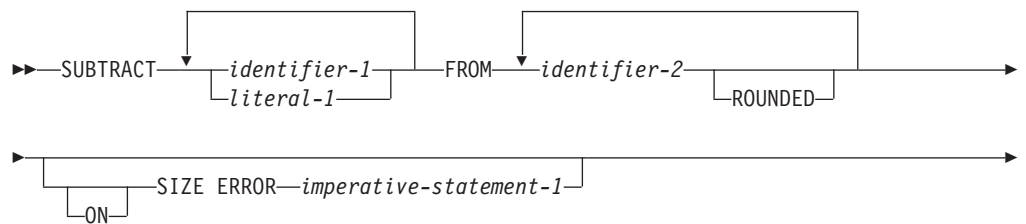
STRING Statement

STRING Statement - Format

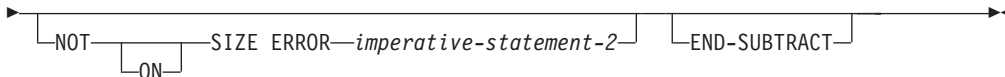


SUBTRACT Statement

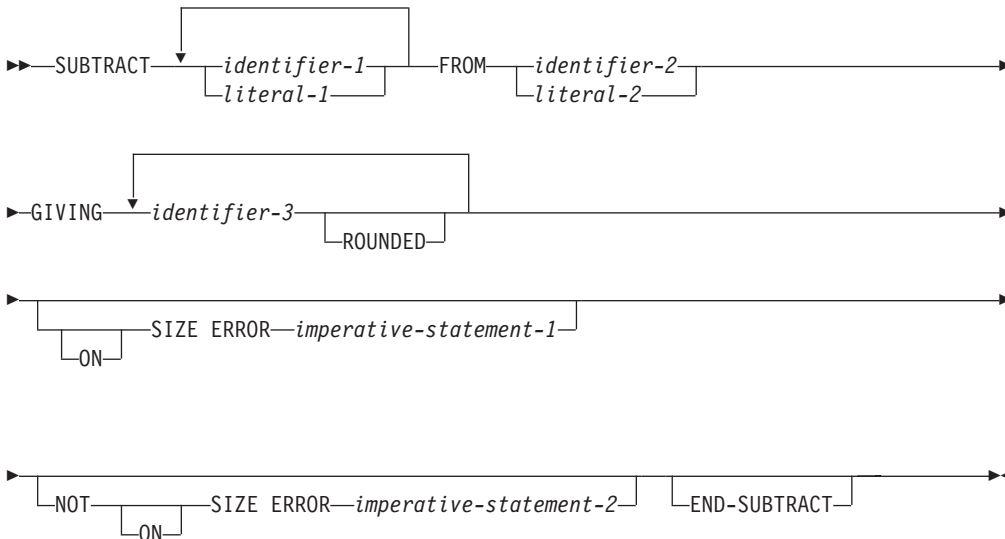
SUBTRACT Statement - Format 1



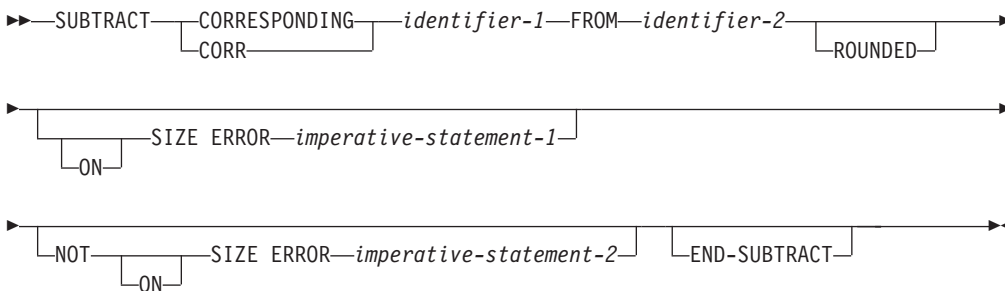
Procedure Division Statements



SUBTRACT Statement - Format 2 - GIVING



SUBTRACT Statement - Format 3 - CORRESPONDING

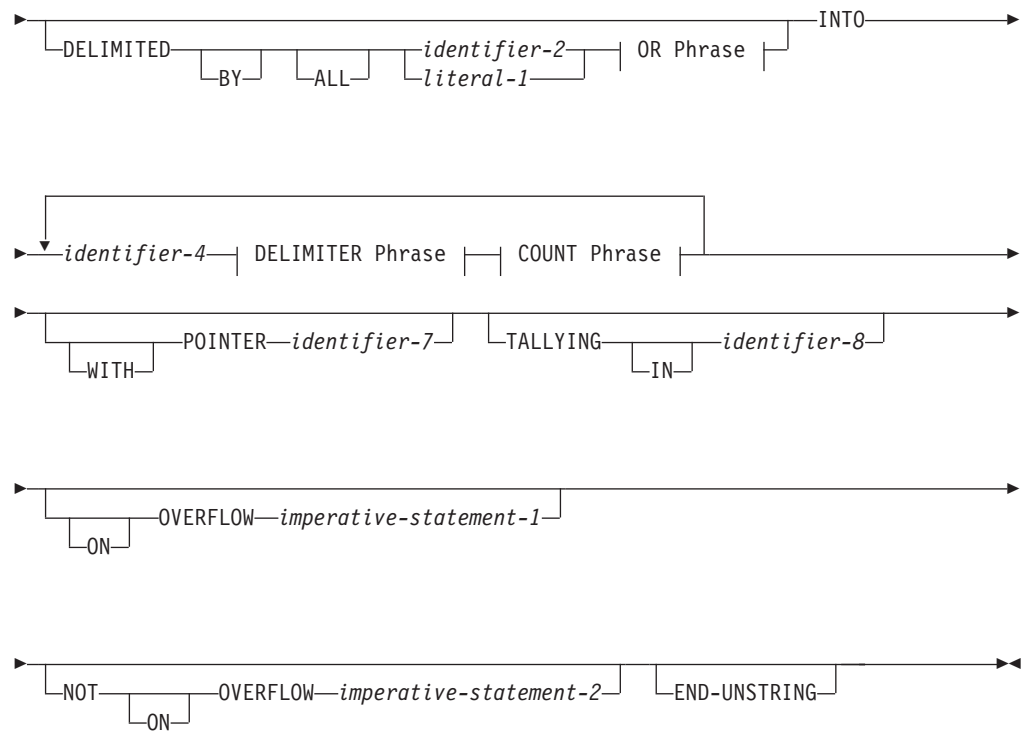


UNSTRING Statement

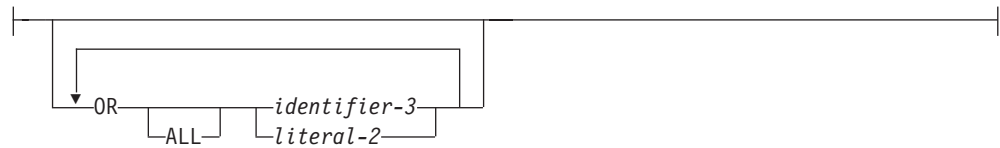
UNSTRING Statement - Format



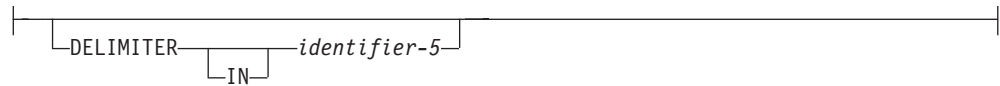
Procedure Division Statements



OR Phrase:



DELIMITER Phrase:

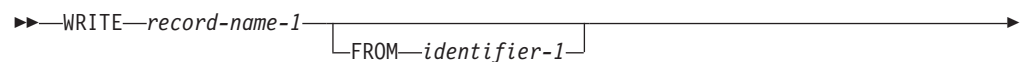


COUNT Phrase:

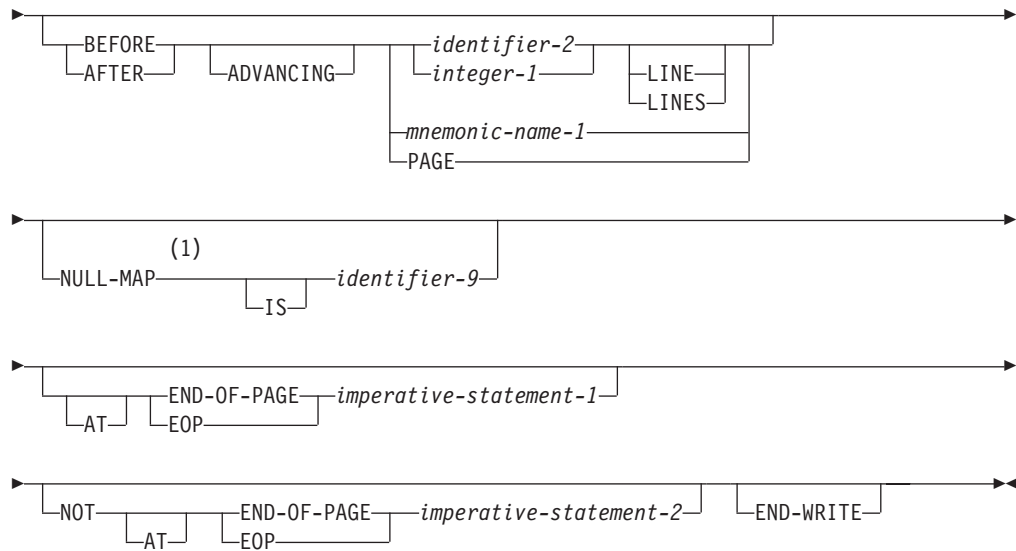


WRITE Statement

WRITE Statement - Format 1 - Sequential Files



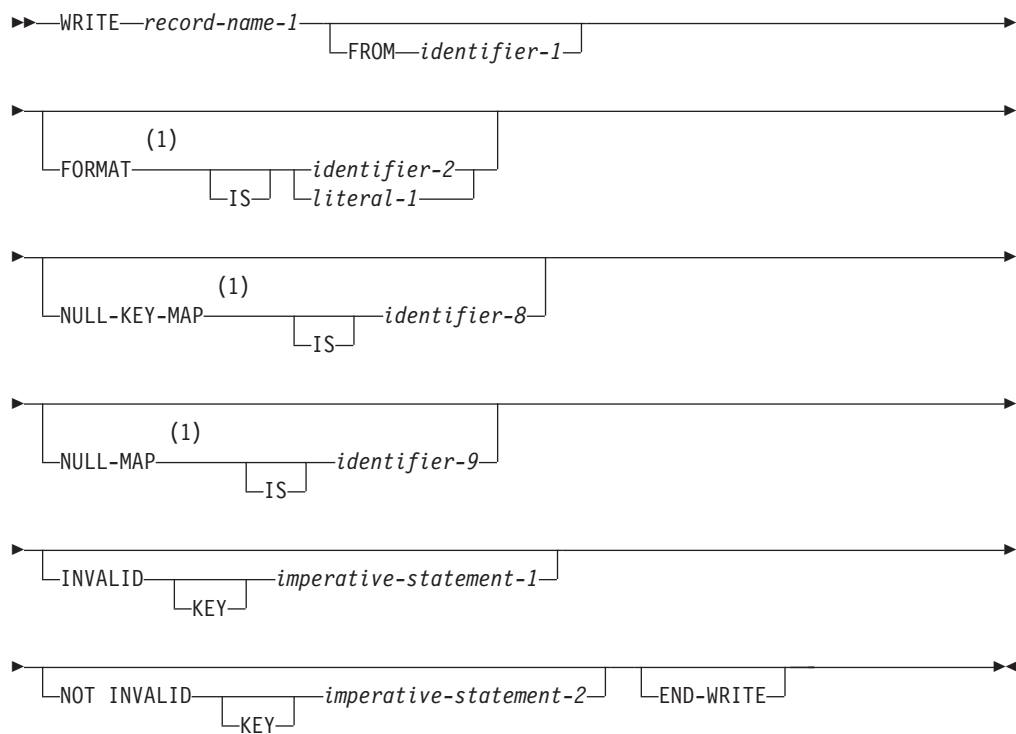
Procedure Division Statements



Notes:

- 1 IBM Extension.

WRITE - Format 2 - Indexed and Relative Files

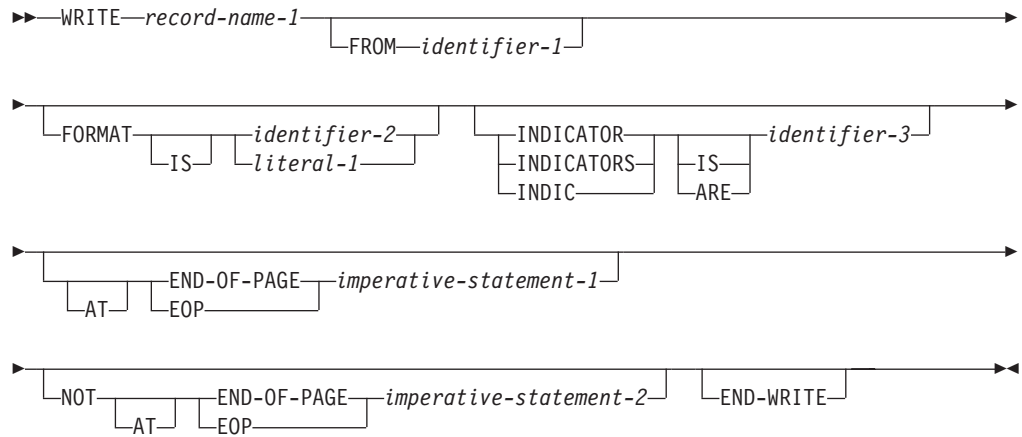


Notes:

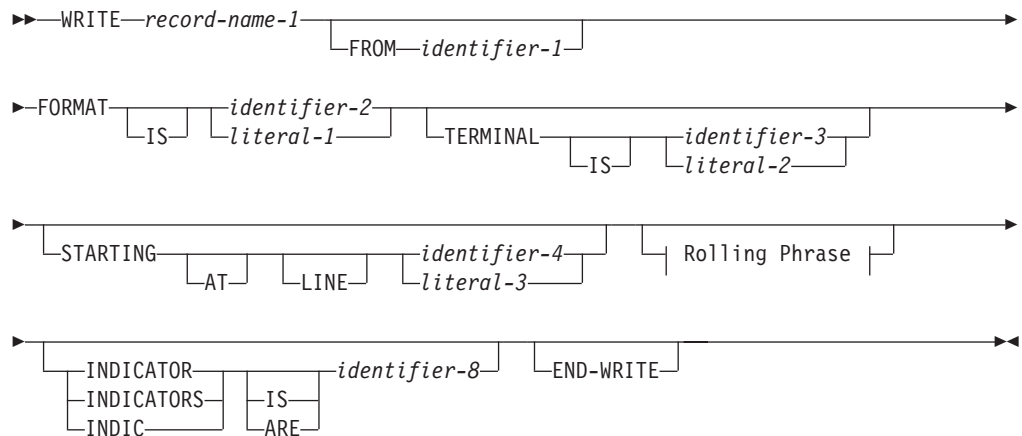
- 1 IBM Extension

IBM Extension

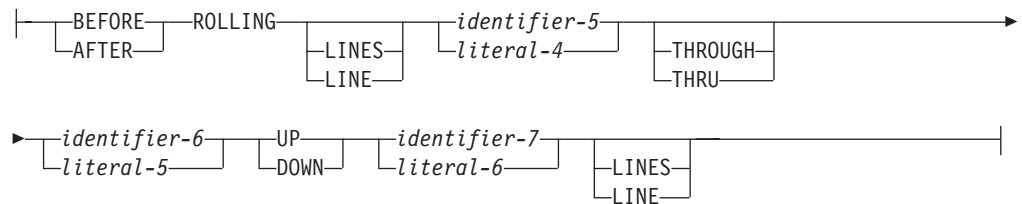
WRITE Statement - Format 3 - FORMATFILE



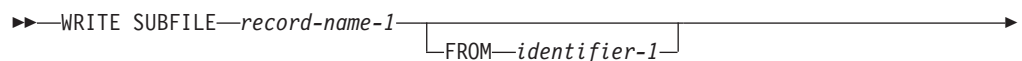
WRITE - Format 4 - TRANSACTION (Nonsubfile)



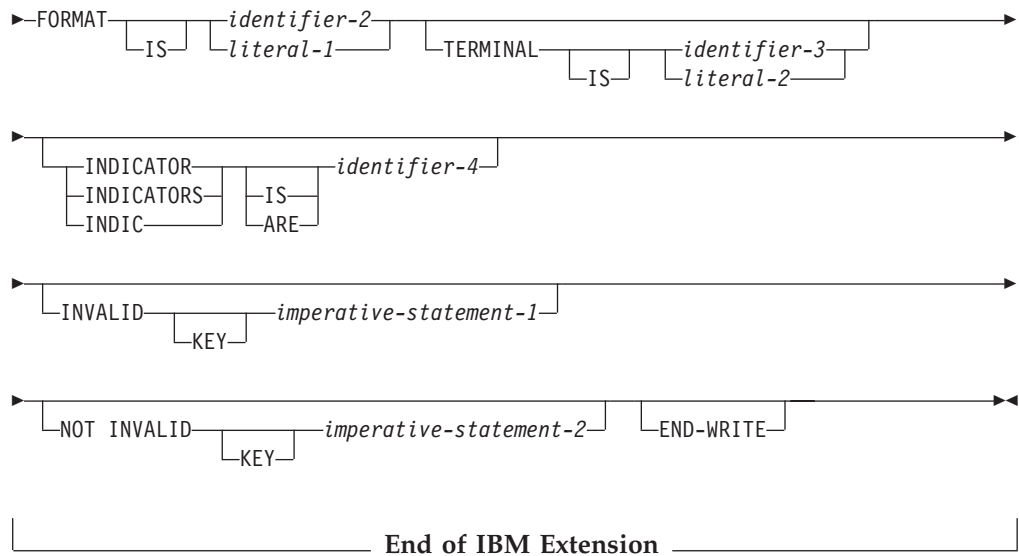
Rolling Phase:



WRITE Statement - Format 5 - TRANSACTION (Subfile)



Procedure Division Statements

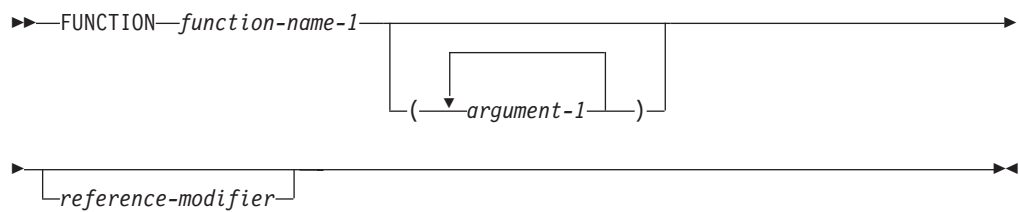


Intrinsic Functions

This is the general syntax for intrinsic functions.

Function-Identifier

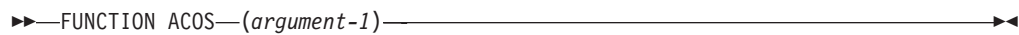
Format



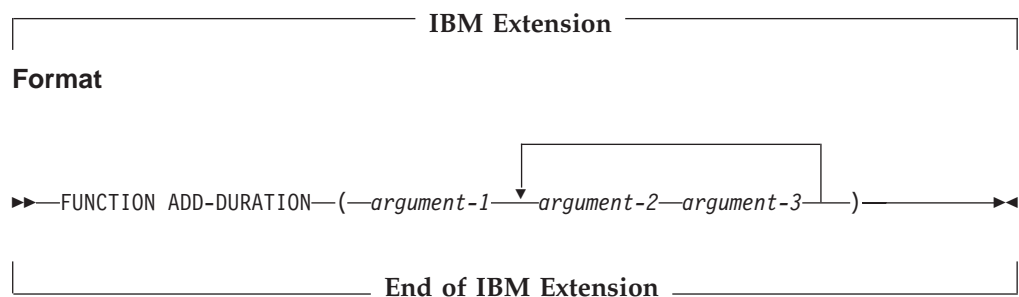
These following intrinsic functions are presented in alphabetical order.

ACOS Function

Format



ADD-DURATION Function



ASIN Function

Format

►►—FUNCTION ASIN—(*argument-1*)—————►◄

ATAN Function

Format

►►—FUNCTION ATAN—(*argument-1*)—————►◄

CHAR Function

Format

►►—FUNCTION CHAR—(*argument-1*)—————►◄

CONVERT-DATE-TIME Function

	IBM Extension	
Format		
►►—FUNCTION CONVERT-DATE-TIME—————►		
►—(<i>—argument-1—argument-2</i> ————— <i>)</i> —————►◄		
	<div style="border-left: 1px solid black; border-right: 1px solid black; height: 10px; margin: 0 auto; width: 100px;"></div> <i>argument-3</i>	
	<div style="border-left: 1px solid black; border-right: 1px solid black; height: 10px; margin: 0 auto; width: 80px;"></div> <i>argument-4</i>	
End of IBM Extension		

COS Function

Format

►►—FUNCTION COS—(*argument-1*)—————►◄

CURRENT-DATE Function

Format

►►—FUNCTION CURRENT-DATE—————►◄

Intrinsic Functions

DATE-OF-INTEGER Function

Format

►►—FUNCTION DATE-OF-INTEGER—(*argument-1*)—————►◄

DAY-OF-INTEGER Function

Format

►►—FUNCTION DAY-OF-INTEGER—(*argument-1*)—————►◄

DATE-TO-YYYYMMDD Function

————— IBM Extension —————

Format

►►—FUNCTION DATE-TO-YYYYMMDD—(*argument-1*—*argument-2*)—————►◄

————— End of IBM Extension —————

DAY-TO-YYYYDDD Function

————— IBM Extension —————

Format

►►—FUNCTION DAY-TO-YYYYDDD—(*argument-1*—*argument-2*)—————►◄

————— End of IBM Extension —————

EXTRACT-DATE-TIME Function

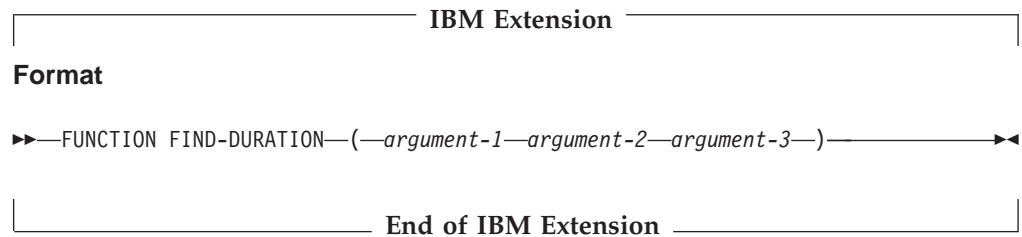
————— IBM Extension —————

Format

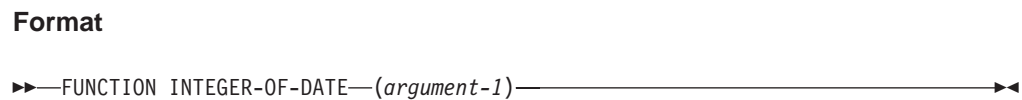
►►—FUNCTION EXTRACT-DATE-TIME—(—*argument-1*—*argument-2*—)—————►◄

————— End of IBM Extension —————

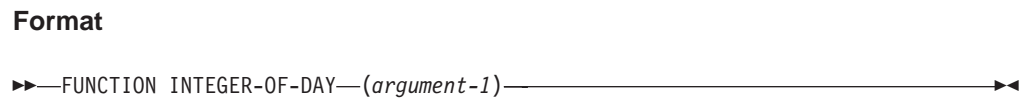
FIND-DURATION Function



INTEGER-OF-DATE Function



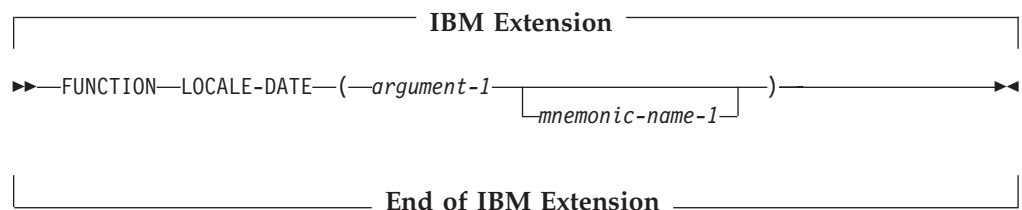
INTEGER-OF-DAY Function



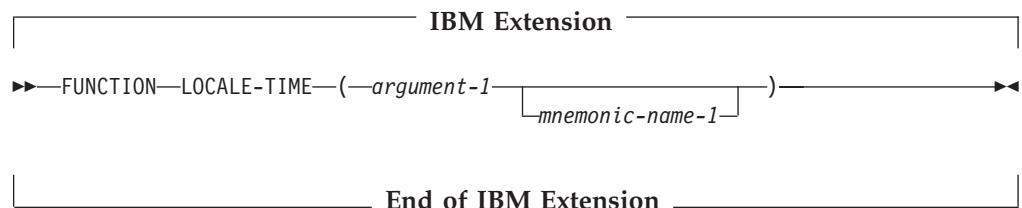
LENGTH Function



LOCALE-DATE Function



LOCALE-TIME Function



Intrinsic Functions

LOG Function

Format

»»—FUNCTION LOG—(*argument-1*)—————»»

LOG10 Function

Format

»»—FUNCTION LOG10—(*argument-1*)—————»»

LOWER-CASE Function

Format

»»—FUNCTION LOWER-CASE—(*argument-1*)—————»»

MAX Function

Format

»»—FUNCTION MAX—(—*argument-1*—)—————»»

MEAN Function

Format

»»—FUNCTION MEAN—(—*argument-1*—)—————»»

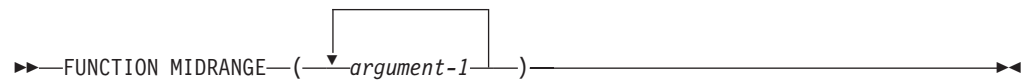
MEDIAN Function

Format

»»—FUNCTION MEDIAN—(—*argument-1*—)—————»»

MIDRANGE Function

Format



MIN Function

Format

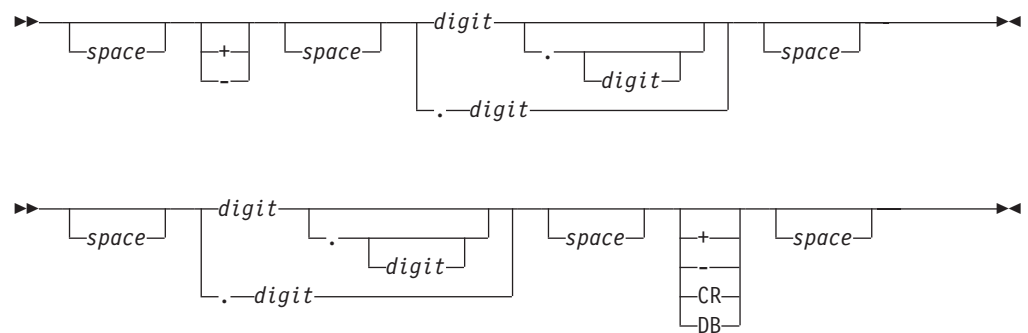


NUMVAL Function

Format

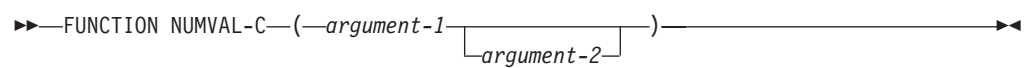


Argument-1 can have one of the following formats:

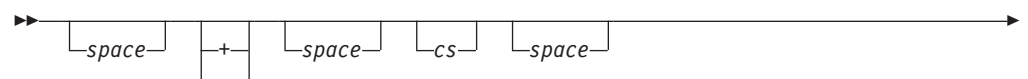


NUMVAL-C Function

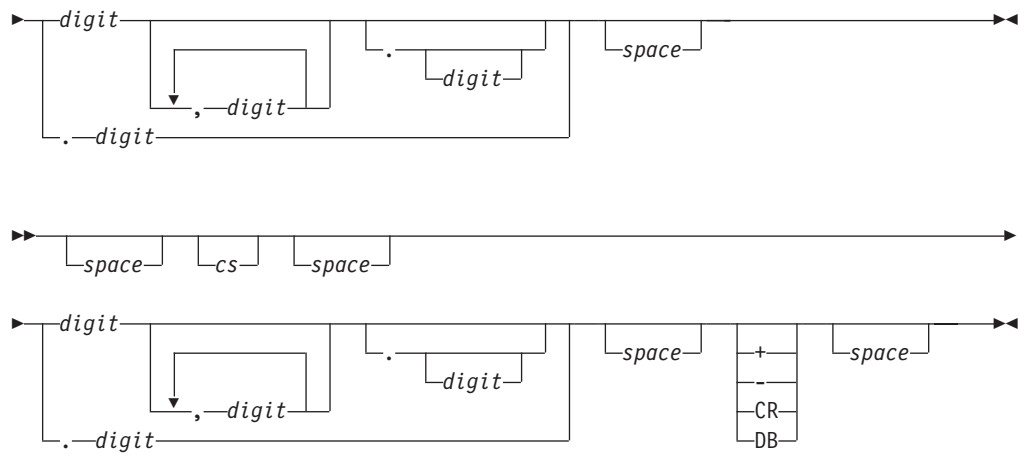
Format



The format for argument-1 is one of the following two formats, where `cs` is the currency sign specified in argument-2:



Intrinsic Functions



ORD Function

Format

►►—FUNCTION ORD—(*argument-1*)—►►

ORD-MAX Function

Format

►►—FUNCTION ORD-MAX—(*argument-1*)—►►

ORD-MIN Function

Format

►►—FUNCTION ORD-MIN—(*argument-1*)—►►

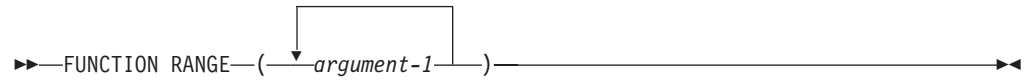
PRESENT-VALUE Function

Format

►►—FUNCTION PRESENT-VALUE—(*argument-1*, *argument-2*)—►►

RANGE Function

Format



REVERSE Function

Format



SIN Function

Format



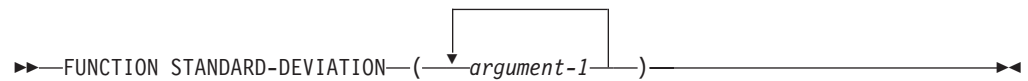
SQRT Function

Format



STANDARD-DEVIATION Function

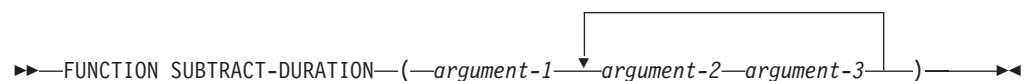
Format



SUBTRACT-DURATION Function

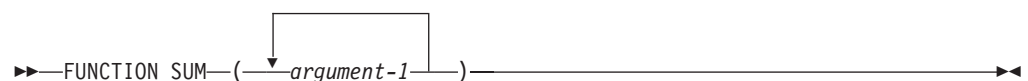


Format



SUM Function

Format



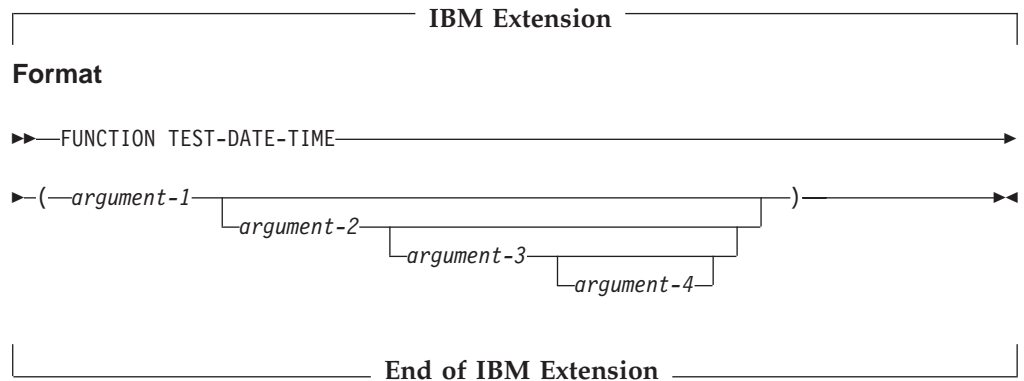
Intrinsic Functions

TAN Function

Format

►►—FUNCTION TAN—(*argument-1*)—◄◄

TEST-DATE-TIME Function



UPPER-CASE Function

Format

►►—FUNCTION UPPER-CASE—(*argument-1*)—◄◄

UTF8STRING Function

Format

►►—FUNCTION UTF8STRING—(*argument-1*)—◄◄

VARIANCE Function

Format

►►—FUNCTION VARIANCE—(*argument-1*)—◄◄

```
graph LR
    direction LR
    F1[Format]
    F2["►►—FUNCTION VARIANCE—(argument-1)—◄◄"]
    F3[Format]
```

WHEN-COMPILED Function

Format

►►—FUNCTION WHEN-COMPILED—◄◄

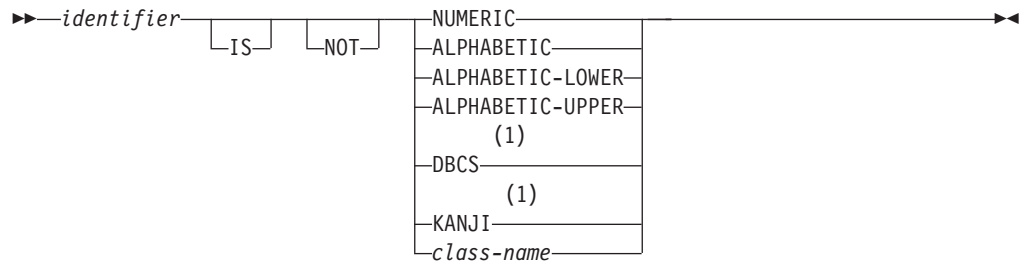
YEAR-TO-YYYY Function

The diagram illustrates the format of the `YEAR-TO-YYYY` function with an IBM extension. It shows a sequence of tokens: `FUNCTION`, `YEAR-TO-YYYY`, an opening parenthesis `(`, the argument `argument-1`, a closing parenthesis `)`, and the argument `argument-2`. The argument `argument-2` is enclosed in brackets `[]`. The entire sequence is enclosed in a box labeled "IBM Extension".

Intrinsic Functions

Chapter 7. Conditional Expressions

Class Condition - Format



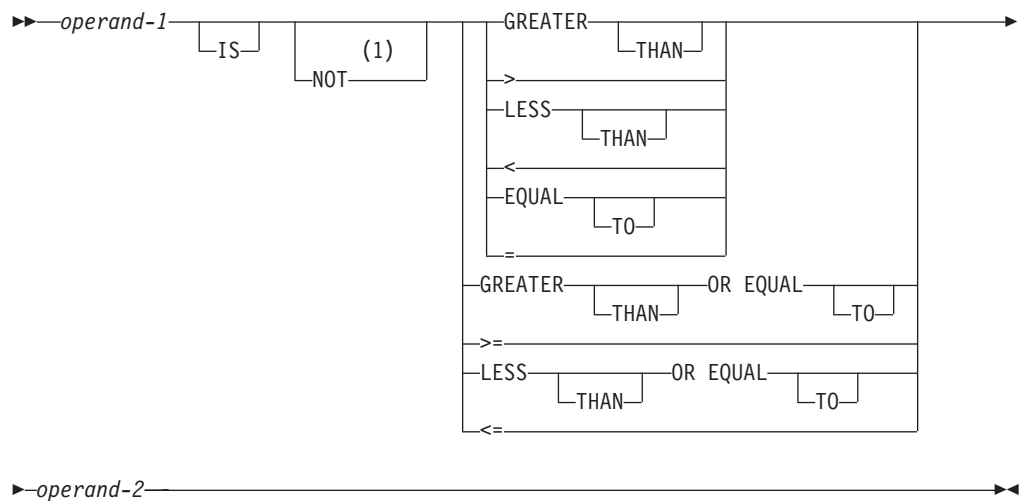
Notes:

- 1 IBM Extension

Condition-Name Condition - Format



Relation Condition - Format



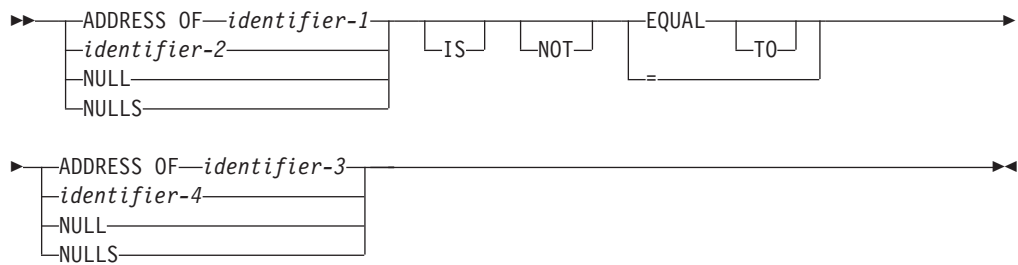
Notes:

- 1 NOT GREATER THAN OR EQUAL TO, NOT `>=`, NOT LESS THAN OR EQUAL TO, and NOT `<=`, are IBM Extensions.

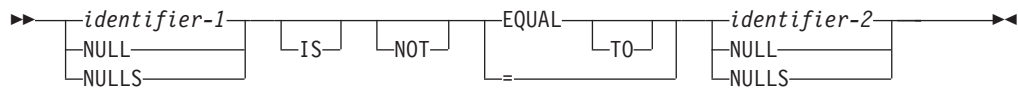
IBM Extension

The following two syntax diagrams apply to pointer data items and procedure-pointer data items, respectively.

ADDRESS Comparison - Format

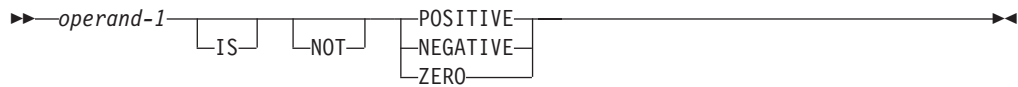


Procedure-Pointer Comparison - Format



_____ End of IBM Extension _____

Sign Condition - Format



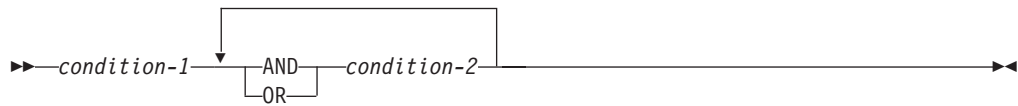
Switch-Status Condition - Format



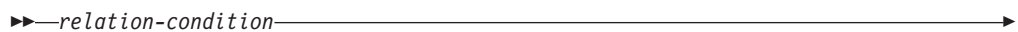
Negated Simple Condition - Format

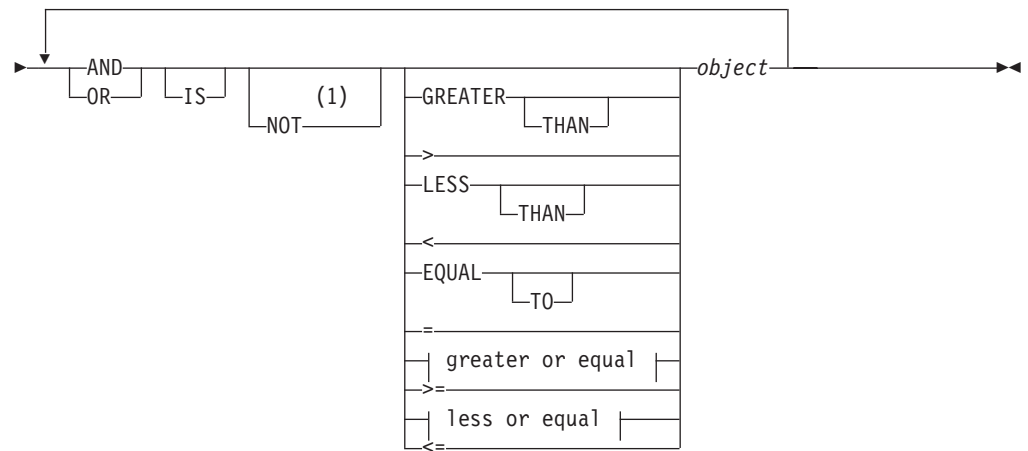


Combined Conditions - Format

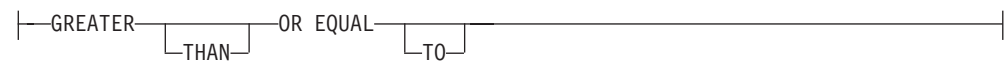


Abbreviated Combined Relation Conditions - Format

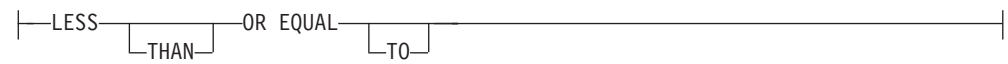




greater or equal:



less or equal:

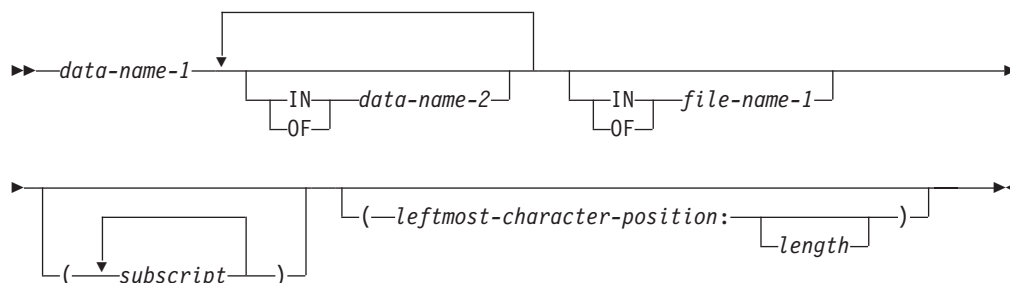


Notes:

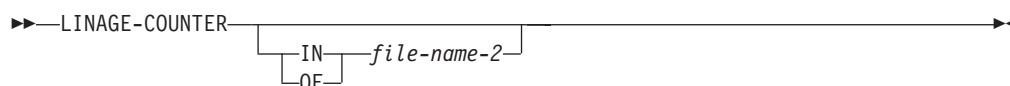
- 1 NOT GREATER THAN OR EQUAL TO, NOT \geq , NOT LESS THAN OR EQUAL TO, and NOT \leq , are IBM Extensions.

Chapter 8. Qualifying Data Reference Formats

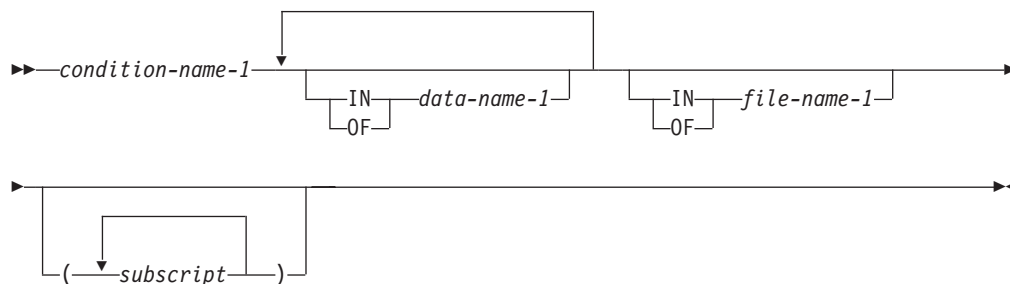
Format 1 - Identifier



Format 2 - LINAGE-COUNTER

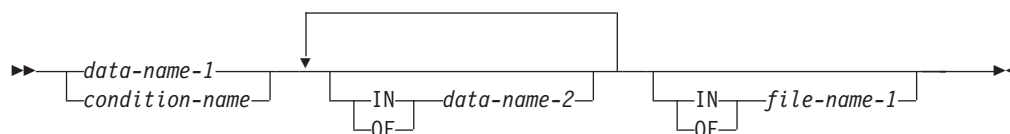


Format 3 - condition-name

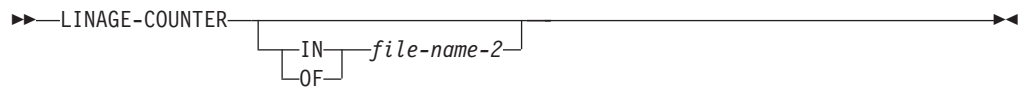


Qualification

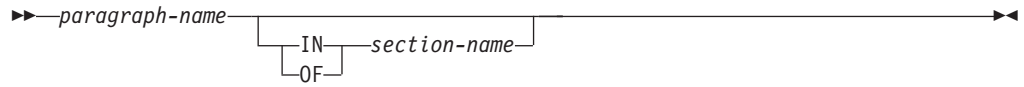
References to Data Division Names - Format 1



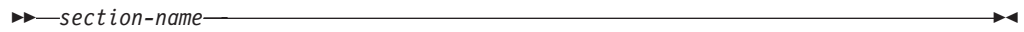
References to Data Division Names - Format 2



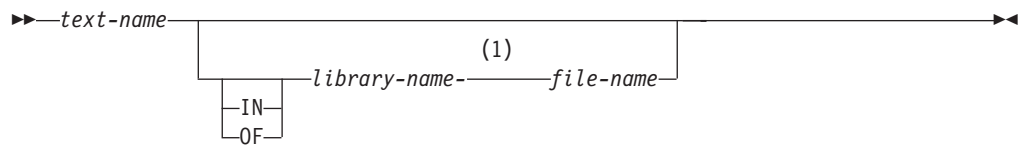
References to Procedure Division Names - Format 1



References to Procedure Division Names - Format 2



References to COPY Libraries - Format 3

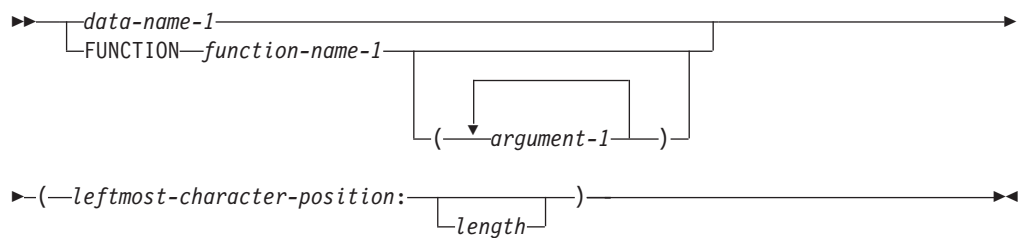


Notes:

- 1 Required hyphen between library-name-file-name to qualify

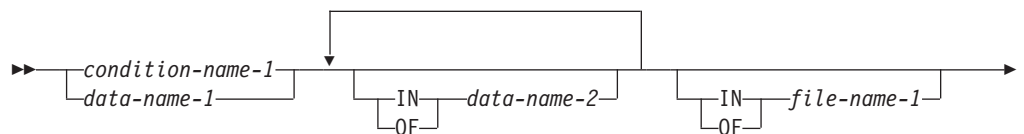
Reference Modification

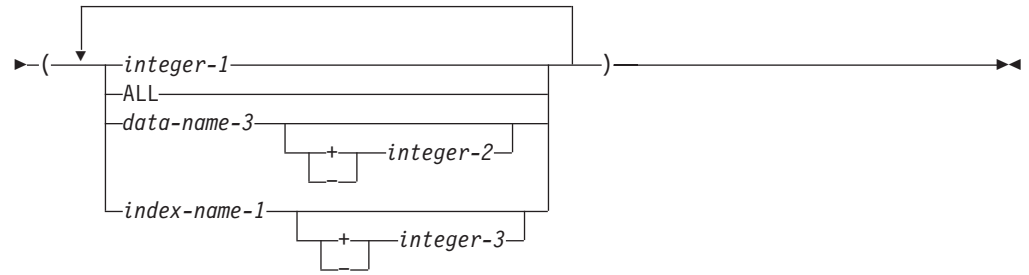
Format



Subscripting

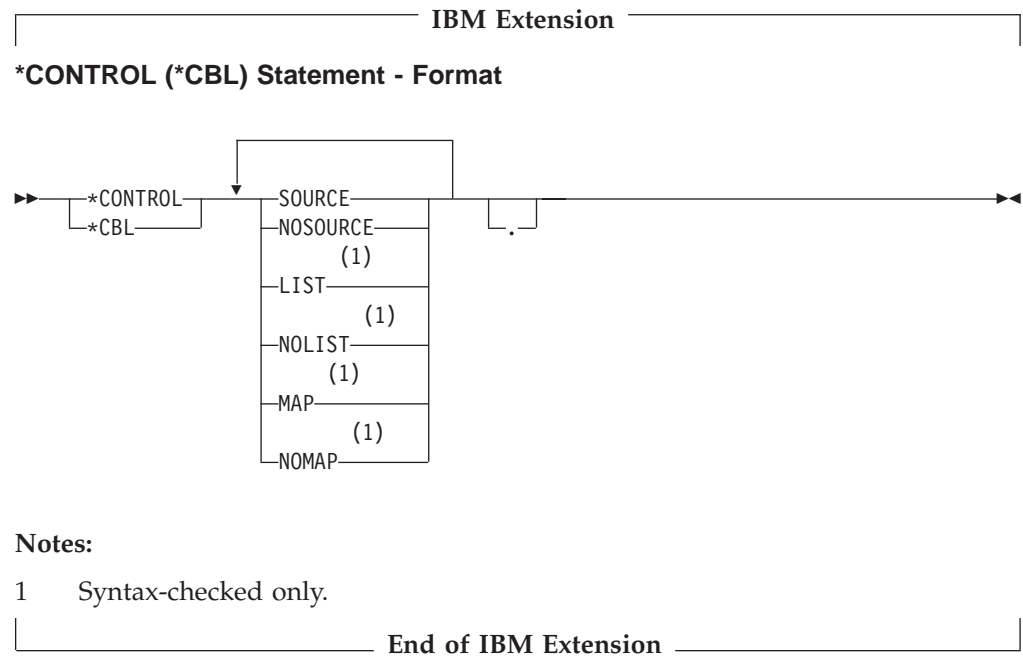
Subscripting - Format





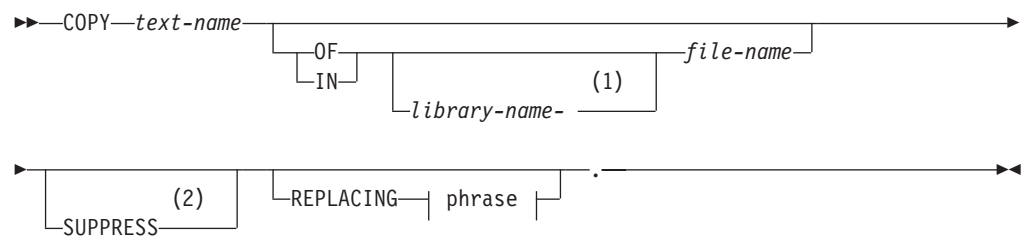
Chapter 9. Compiler-Directing Statements

CONTROL Statement



COPY Statement

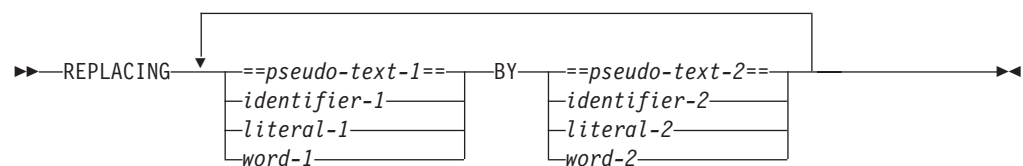
COPY Statement - Format 1



Notes:

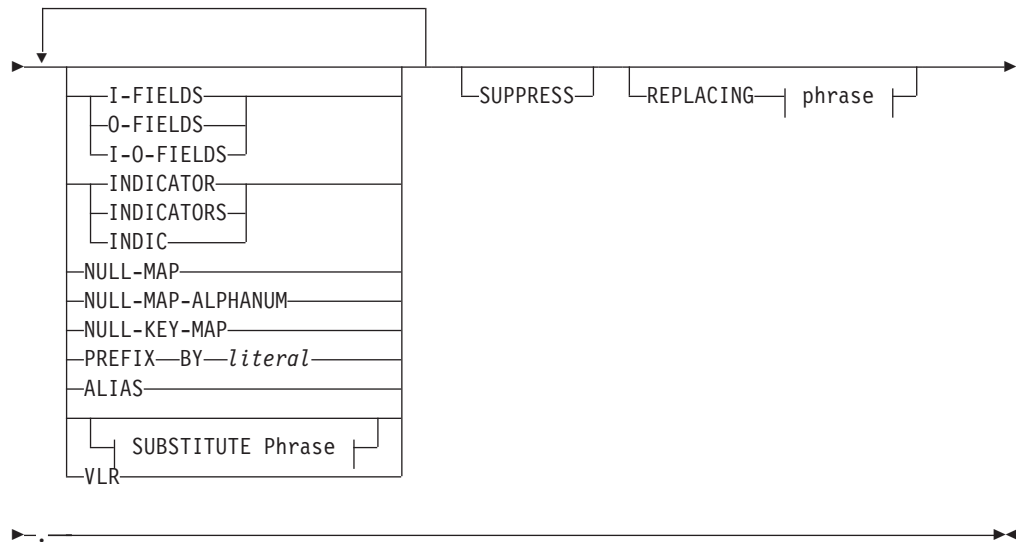
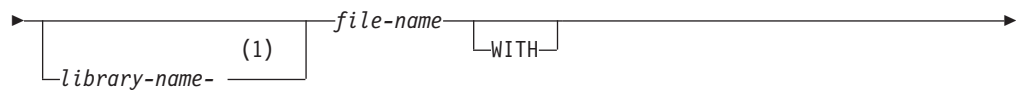
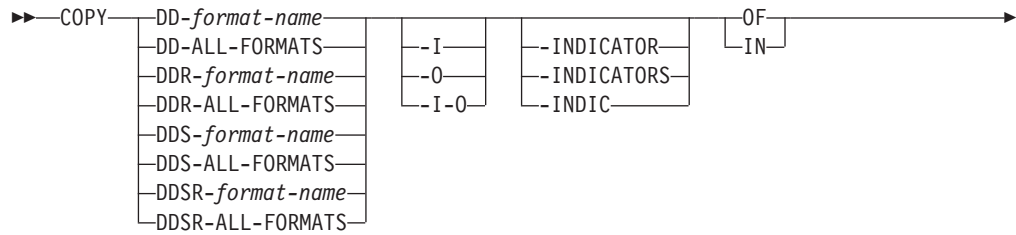
- 1 Required hyphen between library-name-file-name to qualify.
- 2 IBM Extension

REPLACING Phrase - Format

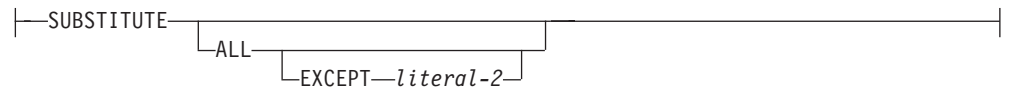


IBM Extension

COPY Statement - Format 2 - DDS Translate



SUBSTITUTE Phrase:

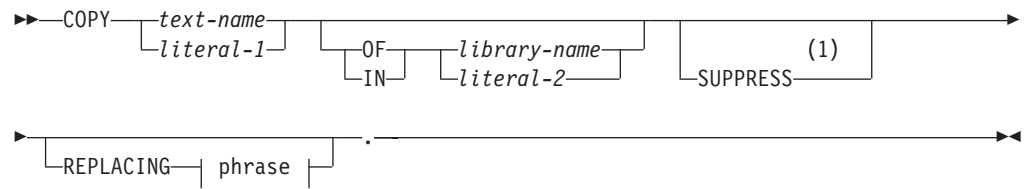


Notes:

- 1 Required hyphen between library-name-file-name to qualify.

End of IBM Extension

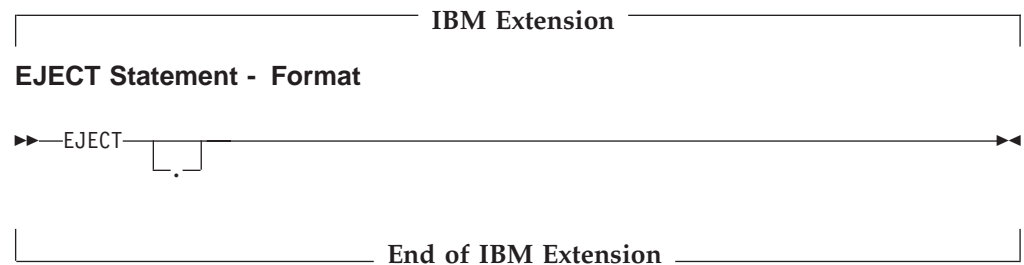
Copy Statement - Format 3 - Basic IFS



Notes:

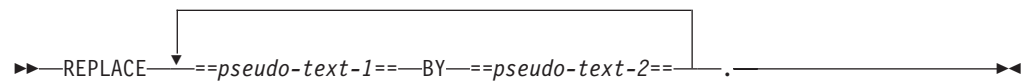
- 1 IBM Extension

EJECT Statement



REPLACE Statement

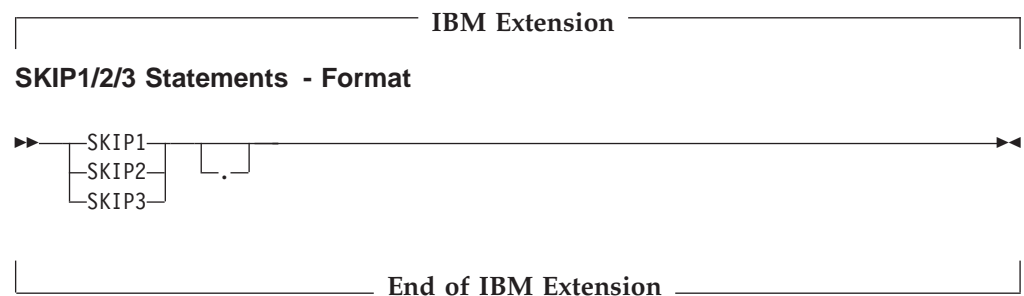
REPLACE Statement - Format 1



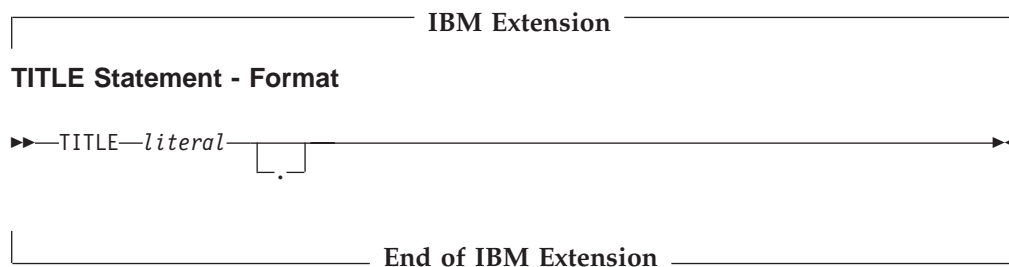
REPLACE Statement - Format 2



SKIP Statement

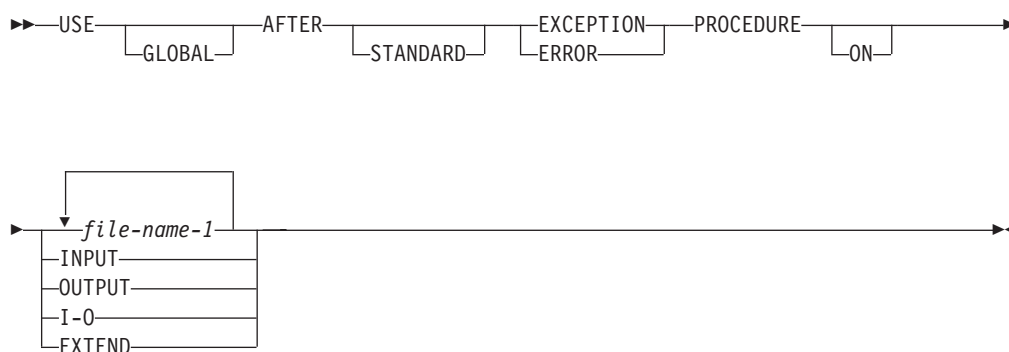


TITLE Statement

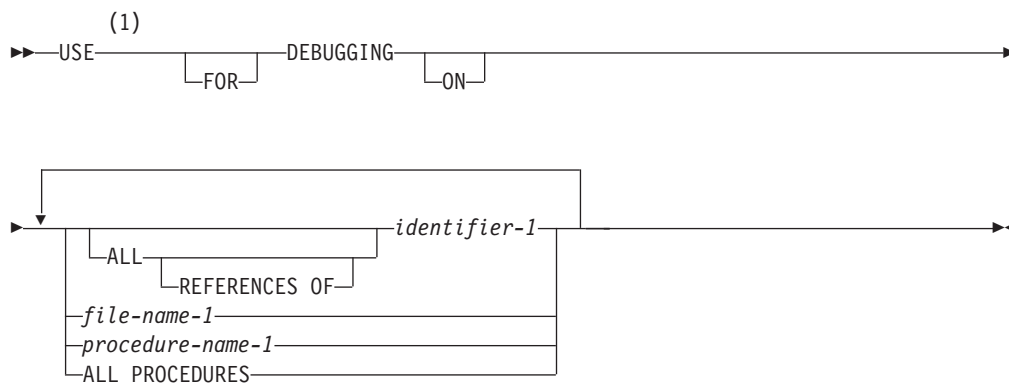


USE Statement

USE Statement - Format



USE FOR DEBUGGING Declarative - Format



Notes:

- 1 Syntax-checked only.

Chapter 10. Symbols, Names, and Figurative Constants

Symbol

Meaning

A	Alphabetic character or space
B	Space insertion character
P	Decimal scaling position (not counted in size of data item)
S	Operational sign (not counted in size of data item unless a SIGN clause with optional SEPARATE CHARACTER phrase is specified)
V	Assumed decimal point (not counted in size of data item)
X	Alphanumeric character (any from the EBCDIC set)
Z	Zero suppression character
9	Numeric character

IBM Extension

1 Boolean character

End of IBM Extension

IBM Extension

E Floating-point data

End of IBM Extension

IBM Extension

G DBCS character

End of IBM Extension

IBM Extension

N DBCS character

End of IBM Extension

0	Zero insertion character
/	Slash insertion character
,	Comma insertion character
.	Decimal point or period editing control character
+	Plus sign insertion editing control character
-	Minus sign editing control character
CR	Credit editing control character
DB	Debit editing control character
\$	Currency symbol insertion character (\$ is default).

Assignment-Names in the ASSIGN Clause

Format

►► *device* — *file-name* — *attribute* ◄◄

device:	PRINTER FORMATFILE TAPEFILE DISKETTE DISK DATABASE WORKSTATION
file-name:	1-10 character name
attribute:	SI (separate indicator area) (allow null fields)

Environment-Names in the SPECIAL-NAMES Paragraph

Table 1. Choices of Environment-Name-1 and Action Taken

Environment-name-1	Usage
CONSOLE, SYSTEM-CONSOLE	Communicate with the system operator's message queue (QSYSOPR).
REQUESTOR	Communicate with the user work station (interactive jobs) or the batch input stream or job log (batch jobs).
CSP	Suppress spacing when printing a line. Use only when PRINTER is the device.
C01	Skip to the next page. Use only when PRINTER is the device.
OPEN-FEEDBACK	Give information about a file, but only when the file is open.
I-O-FEEDBACK	Give information about the last I-O operation on a file, but only when the file is open.
DATA-AREA	Retrieves or updates an AS/400 data area.
ATTRIBUTE-DATA	Retrieve attribute data about a program device acquired by a transaction file, but only when the file is open.
LOCAL-DATA	Retrieve data from, or move data to the local data area created by the system for every job.
PIP-DATA	Retrieve data from the Program Initialization Parameters (PIP) data area for programs running as part of a prestart job.
SYSIN	The equivalent of REQUESTOR (for the ACCEPT statement only)
SYSOUT	The equivalent of REQUESTOR (for the DISPLAY statement only)

Table 2. Choices of Environment-Name-2 and Action Taken

Environment-name-2	Usage
UPSI-0 through UPSI-7	Program switches associated with condition-names
SYSTEM-SHUTDOWN	Internal switches associated with condition-names

Figurative Constants

The following figurative constants can be used:

ALL "literal"
HIGH-VALUE
HIGH-VALUES
LOW-VALUE
LOW-VALUES

IBM Extension

NULL
NULLS

End of IBM Extension

QUOTE
QUOTES
SPACE
SPACES
ZERO
ZEROES
ZEROS

Chapter 11. File Structure Support Summary and Status Key Values

File Structure Support Tables

Table 3 lists the required and optional entries for various types of file structures supported. Any file with a device type of disk can be assigned to a database or non-database auxiliary storage file. The codes used are as follows:

- . Not applicable
- B Optional for a work station that supports subfiles
- C Optional entry, treated as comments only
- D Optional for file assigned to DATABASE-, not allowed if not assigned to a database file
- I Optional for a file opened for input or input-output
- J Optional for a file opened for input-output
- O Optional
- R Required
- S Required for a work station that supports subfiles
- X Required; syntax checked, but treated as documentation

Table 4 on page 113 and Table 5 on page 114 contain status key values and their meanings.

Table 3. File Structure Support

Device Type	Printer	Tape	DiskSeq	Disk Rel Seq	Disk Rel Random	Disk Rel Dynamic	Disk IDX Seq	Disk IDX Random	Disk IDX Dynamic	Workstation	Diskette	Format File
Environment Division												
RERUN...RECORDS	C	C	C	C	C	C	C	C	C	C	C	C
SAME	O	O	O	O	O	O	O	O	O	O	O	O
AREA	C	C	C	C	C	C	C	C	C	C	C	C
RECORD AREA	O	O	O	O	O	O	O	O	O	O	O	O
SORT AREA	.	C	C	.	.	.	.	.	.	.	.	.
SORT MERGE AREA	.	C	C	.	.	.	.	.	.	.	.	.
MULTIPLE FILE TAPE	.	C	.	.	.	.	.	.	.	.	.	.
COMMITMENT CONTROL	.	.	D	D	D	D	D	D	D	.	.	.
SELECT	R	R	R	R	R	R	R	R	R	R	R	R
ASSIGN	R	R	R	R	R	R	R	R	R	R	R	R
OPTIONAL	.	.	I	I	I	I	.	.	.	.	.	.

File Structure Support Summary

Table 3. File Structure Support (continued)

Device Type	Printer	Tape	DiskSeq	Disk Rel Seq	Disk Rel Random	Disk Rel Dynamic	Disk IDX Seq	Disk IDX Random	Disk IDX Dynamic	Workstation	Diskette	Format File
ORGANIZATION	O	O	O	R	R	R	R	R	R	R	O	O
SEQUENTIAL	O	O	O	.	.	.	.	.	.	.	O	O
RELATIVE	.	.	.	R	R	R	.	.	.	.	.	.
INDEXED	.	.	.	.	.	.	R	R	R	.	.	.
TRANSACTION	.	.	.	.	.	.	.	.	.	R	.	.
ACCESS	O	O	O	O	R	R	O	R	R	O	O	O
SEQUENTIAL	O	O	O	O	.	.	O	.	.	O	O	O
RANDOM	.	.	.	.	R	.	.	R	.	.	.	.
DYNAMIC	.	.	.	.	.	R	.	.	R	S	.	.
RESERVE	C	C	C	C	C	C	C	C	C	.	C	C
RELATIVE KEY	.	.	.	O	R	R	.	.	.	S	.	.
RECORD KEY	.	.	.	.	.	.	R	R	R	.	.	.
DUPLICATES	.	.	.	.	.	.	D	D	D	.	.	.
FILE STATUS	O	O	O	O	O	O	O	O	O	O	O	O
CONTROL-AREA	.	.	.	.	.	.	.	.	.	O	.	.
Data Division												
LABEL RECORDS	X	R	X	X	X	X	X	X	X	X	X	X
STANDARD	.	O	R	R	R	R	R	R	R	O	R	R
OMITTED	R	O	.	.	.	.	.	.	.	O	.	.
VALUE OF	C	C	C	C	C	C	C	C	C	C	C	C
BLOCK CONTAINS	O	O	O	O	O	O	O	O	O	O	O	O
RECORD CONTAINS	O	O	O	O	O	O	O	O	O	O	O	O
DATA RECORDS	O	O	O	O	O	O	O	O	O	O	O	O
CODE-SET	.	O	.	.	.	.	.	.	.	.	O	.
LINAGE	O	.	.	.	.	.	.	.	.	.	.	.
Procedure Division												
OPEN	R	R	R	R	R	R	R	R	R	R	R	R
INPUT	.	O	O	O	O	O	O	O	O	.	O	.
OUTPUT	R	O	O	O	O	O	O	O	O	.	O	O
I-O	.	.	O	O	O	O	O	O	O	R	.	.
NO REWIND	.	I	.	.	.	.	.	.	.	.	.	.
REVERSED	.	I	.	.	.	.	.	.	.	.	.	.
EXTEND	.	O	O	.	.	.	.	.	.	.	.	O
CLOSE	R	R	R	R	R	R	R	R	R	R	R	R
REEL/UNIT	.	O	.	.	.	.	.	.	.	.	.	.

File Structure Support Summary

Table 3. File Structure Support (continued)

Device Type	Printer	Tape	DiskSeq	Disk Rel Seq	Disk Rel Random	Disk Rel Dynamic	Disk IDX Seq	Disk IDX Random	Disk IDX Dynamic	Workstation	Diskette	Format File
REMOVAL	.	O	.	.	.	.	.	.	.	.	.	.
NO REWIND	.	O	.	.	.	.	.	.	.	.	.	.
NO REWIND	.	O	.	.	.	.	.	.	.	.	.	.
WITH LOCK	O	O	O	O	O	O	O	O	O	O	O	O
READ	.	I	I	I	I	I	I	I	I	I	I	.
NEXT	I	.	.	I	.	.	.
FIRST	D	.	.	.
LAST	D	.	.	.
PRIOR	D	.	.	.
INTO	.	I	I	I	I	I	I	I	I	I	I	.
WITH NO LOCK	.	.	J	J	J	J	J	J	J	.	.	.
KEY IS	I	I	.	.	.
AT END	.	I	I	I	.	I	I	.	I	I	I	.
NOT AT END	.	I	I	I	.	I	I	.	I	I	I	.
INVALID KEY	I	I	.	I	I	B	.	.
NOT INVALID KEY	I	I	.	I	I	B	.	.
FORMAT	.	.	D	.	.	.	D	D	D	J	.	R
NULL-KEY-MAP	D	D	D	.	.	.
NULL-MAP	.	.	D	D	D	D	D	D	D	.	.	.
NEXT MODIFIED	B	.	.
SUBFILE	B	.	.
INDICATORS	J	.	.
TERMINAL	O	.	.
NO DATA	O	.	.
WRITE	O	O	O	O	O	O	O	O	O	O	O	O
FROM	O	O	O	O	O	O	O	O	O	O	O	O
INVALID KEY	.	.	.	O	O	O	O	O	O	B	.	.
NOT INVALID KEY	.	.	.	O	O	O	O	O	O	B	.	.
ADVANCING	O	.	.	.	.	.	.	.	.	.	.	.
AT END-OF-PAGE	O	.	.	.	.	.	.	.	.	.	.	.
NOT AT END-OF-PAGE	O	.	.	.	.	.	.	.	.	.	.	.
FORMAT	.	.	D	.	.	.	D	D	D	R	.	R
NULL-KEY-MAP	D	D	D	.	.	.
NULL-MAP	.	.	D	D	D	D	D	D	D	.	.	.
STARTING	O	.	.

File Structure Support Summary

Table 3. File Structure Support (continued)

Device Type	Printer	Tape	DiskSeq	Disk Rel Seq	Disk Rel Random	Disk Rel Dynamic	Disk IDX Seq	Disk IDX Random	Disk IDX Dynamic	Workstation	Diskette	Format File
ROLLING	O	.	.
INDICATORS	O	.	.
SUBFILE	B	.	.
TERMINAL	O	.	.
START	.	.	.	O	.	O	O	.	O	.	.	.
KEY	.	.	.	O	.	O	O	.	O	.	.	.
INVALID KEY	.	.	.	O	.	O	O	.	O	.	.	.
NOT INVALID KEY	.	.	.	O	.	O	O	.	O	.	.	.
FORMAT	D	D	D	.	.	.
NULL-KEY-MAP	D	D	D	.	.	.
REWRITE	.	.	O	O	O	O	O	O	O	B	.	.
FROM	.	.	O	O	O	O	O	O	O	B	.	.
INVALID KEY	O	O	.	O	O	B	.	.
NOT INVALID KEY	O	O	.	O	O	B	.	.
FORMAT	D	D	B	.	.
NULL-KEY-MAP	D	D	D	.	.	.
NULL-MAP	.	.	D	D	D	D	D	D	D	.	.	.
INDICATORS	B	.	.
SUBFILE	S	.	.
TERMINAL	O	.	.
DELETE	.	.	.	O	O	O	O	O	O	.	.	.
NULL-KEY-MAP	D	D	D	.	.	.
INVALID KEY	O	O	.	O	O	.	.	.
NOT INVALID KEY	O	O	.	O	O	.	.	.
FORMAT	D	D	.	.	.
USE	O	O	O	O	O	O	O	O	O	O	O	O
EXCEPTION/ERROR	O	O	O	O	O	O	O	O	O	O	O	O
FOR DEBUGGING	O	O	O	O	O	O	O	O	O	O	O	O
COMMIT	.	.	D	D	D	D	D	D	D	.	.	.
ROLLBACK	.	.	D	D	D	D	D	D	D	.	.	.
ACQUIRE	O	.	.
DROP	O	.	.

Return codes are set by the system after transaction I-O, which involves ICF files or DISPLAY files.

File Structure Support Summary

For more information about return codes, see the *WebSphere Development Studio: ILE COBOL Programmer's Guide*.

Table 4. File Status Keys and Corresponding Return Codes

File Status Key	Major Return Code	Minor Return Code	Explanation
00	00 03 08 09	xx xx except 09) 00 00	Normal completion (operation was successful). No data received. Acquire operation attempted to acquire an already active session or device. File has been dynamically created for OPEN OUTPUT. (See the OPTION(*CRTF) parameter description on the CRTCBMOD command in the <i>WebSphere Development Studio: ILE COBOL Programmer's Guide</i> for further information about dynamic file creation.)
0A	02 03	xx 09	Job being cancelled (controlled).
10	11	00	Read-from-invited-program-device rejected; no invites outstanding.
30	80	xx	Permanent system error. The session has been ended.
92	81	xx	Permanent device or session error.
9C	82	xx	Open or acquire failed; session was not started.
9G	34	xx	Output exception to device or session.
9I	04	xx	Output exception to device or session.
9K	83	E0	Format not found.
9N	83	xx (except E0)	Session error. Session is still active.

File Status Key Values and Meanings

For information about **error handling**, refer to the “Error and Exception Handling” section in the *WebSphere Development Studio: ILE COBOL Programmer’s Guide*.

Table 5. File Status Key Values

High Order Digit	Meaning	Low Order Digit	Meaning
0	Successful Completion	0	Nofurther information
		2	The READ statement was successfully executed, but a duplicate key was detected. That is, the key value for the current key of reference was equal to the value of the key in the next record. For information about enabling file status 02 see the accompanying notes under the READ statement.
		4	An attempt was made to read a record that is larger than the largest, or smaller than the smallest record allowed by the RECORD IS VARYING clause of the associated file-name.
		5	An OPEN statement is successfully executed, but the referenced optional file is not present at the time the OPEN statement is executed. If the open mode is I-O or EXTEND, the file has been created. CPF4101, CPF4102, CPF4103, CPF4207, CPF9812.
		7	For a CLOSE statement with the NO REWIND, REEL/UNIT, or FOR REMOVAL phrase or for an OPEN statement with the NO REWIND phrase, the referenced file was on a non-reel/unit medium.
		A	Job ended in a controlled manner by CL command ENDJOB, PWRDWNSYS, ENDSYS, or ENDSBS CPF4741. Escape message sent during an accept input operation, READ from invited program device (multiple device listings only).
		M	Last record written to a subfile. CPF5003
		P	The file has been opened successfully, but it contains null-capable fields and the ASSIGN clause does not specify ALWNULL and device-type DATABASE.
		Q	A CLOSE statement for a sequentially-processed relative file was successfully executed. The file was created with the *INZDLT and *NOMAX options, so its boundary has been set to the number of records written.

Table 5. File Status Key Values (continued)

High Order Digit	Meaning	Low Order Digit	Meaning
1	At end conditions	0	A sequential READ statement was attempted and no next logical record existed in the file because the end of the file had been reached (no invites outstanding) CPF4740, CPF5001, CPF5025.
		2	<div style="border: 1px solid black; padding: 5px; text-align: center;"> IBM Extension </div> No modified subfile record found. CPF5037 <div style="border: 1px solid black; padding: 5px; text-align: center;"> End of IBM Extension </div>
		4	A sequential READ statement was attempted for a relative file and the number of significant digits in the relative record number was larger than the size of the relative key data item described for the file.
2	Invalid key	1	A sequence error exists for a sequentially accessed indexed file. The prime record key value has been changed by the program between the successful execution of a READ statement and the execution of the next REWRITE statement for that file, or the ascending requirements for successive record key values were violated. Alternatively, the program has changed the record key value between a successful READ and subsequent REWRITE or DELETE operation on a randomly or dynamically-accessed file with duplicate keys.
		2	An attempt was made to write a record that would create a duplicate key in a relative file; or an attempt was made to write or rewrite a record that would create a duplicate prime record key in an indexed file. CPF4759, CPF5008, CPF5026, CPF5034, CPF5084, CPF5085.
		3	An attempt was made to randomly access a record that does not exist in the file. CPF5001, CPF5006, CPF5013, CPF5020, CPF5025.
		4	An attempt was made to write beyond the externally defined boundaries of a relative or indexed file. Or, a sequential WRITE statement was attempted for a relative file and the number of significant digits in the relative record number was larger than the size of the relative record key data item described for the file. CPF5006, CPF5018, CPF5021, CPF5043, CPF5272.

File Status Key Values

Table 5. File Status Key Values (continued)

High Order Digit	Meaning	Low Order Digit	Meaning
3	Permanent error condition	0	No further information CPF4192, CPF5101, CPF5102, CPF5129, CPF5030, CPF5143.
		4	A permanent error exists because of a boundary violation; an attempt was made to write beyond the externally-defined boundaries of a sequential file. CPF5116, CPF5018, CPF5272 if organization is sequential.
		5	An OPEN statement with the INPUT, I-O, or EXTEND phrase was attempted on a non-optional file that was not present. CPF4101, CPF4102, CPF4103, CPF4207, CPF9812.
		7	An OPEN statement was attempted on a file that would not support the open mode specified in the OPEN statement. Possible violations are: <ul style="list-style-type: none"> • The EXTEND or OUTPUT phrase was specified but the file would not support write operations. • The I-O phrase was specified but the file would not support the input and output operations permitted. • The INPUT phrase was specified but the file would not support read operations. CPF4194.
		8	An OPEN statement was attempted on a file previously closed with lock.
		9	The OPEN statement was unsuccessful because a conflict was detected between the fixed file attributes and the attributes specified for that file in the program. The minimum record length specified by the program is less than the minimum record length required for the file. Level check error. CPF4131.

Table 5. File Status Key Values (continued)

High Order Digit	Meaning	Low Order Digit	Meaning
4	Logic error condition	1	An OPEN statement was attempted for a file in the open mode.
		2	A CLOSE statement was attempted for a file that was already closed.
		3	For a sequential file in the sequential access mode, the last input-output statement executed for the associated file prior to the execution of a REWRITE statement was not a successfully executed READ statement. For relative and indexed files in the sequential access mode, the last input-output statement executed for the file prior to the execution of a DELETE or REWRITE statement was not a successfully executed READ statement.
		4	A boundary violation exists because an attempt was made to rewrite a record to a file and the record was not the same size as the record being replaced. An attempt was made to write or rewrite a record that is larger than the largest, or smaller than the smallest record allowed by the RECORD IS VARYING clause of the associated file-name.
		6	A sequential READ, READ NEXT or READ PRIOR statement was attempted on a file open in the input or I-O mode and no valid next record had been established because the preceding START statement was unsuccessful, or the preceding READ statement was unsuccessful or caused an at end condition. CPF5001, CPF5025, CPF5183.
		7	The execution of a READ or START statement was attempted on a file not open in the input or I-O mode.
		8	The execution of a WRITE statement was attempted on a sequential file not open in the output, or extend mode. The execution of a WRITE statement was attempted on an indexed or relative file not open in the I-O, output, or extend mode.
		9	The execution of a DELETE or REWRITE statement was attempted on a file not open in the I-O mode.

File Status Key Values

Table 5. File Status Key Values (continued)

High Order Digit	Meaning	Low Order Digit	Meaning
9	Other errors	0	Other errors: <ul style="list-style-type: none"> File not found Member not found Unexpected I-O exceptions CPF4101, CPF4102, CPF4103 if a USE is applicable for the file (on OPEN OUTPUT, non-optional file). The following exceptions are monitored generically: <ul style="list-style-type: none"> CPF4101 through CPF4399 CPF4501 through CPF4699 CPF4701 through CPF4899 CPF5001 through CPF5099 CPF5101 through CPF5399 CPF5501 through CPF5699 These exceptions are caught, and FILE STATUS is set to 90.
		1	Undefined or unauthorized access type CPF2207, CPF4104, CPF4236, CPF4238, CPF5057, CPF5109, CPF5134, CPF5279.
		2	Logic error: <ul style="list-style-type: none"> File locked File already open I-O to closed file READ after end of file CLOSE on unopened file CPF4106, CPF4132, CPF4740, CPF5067, CPF5070, CPF5119, CPF5145, CPF5146, CPF5149, CPF5176, CPF5209.
		4	No file position indicator REWRITE/DELETE when <i>not</i> sequential access, and last operation was not a successful READ.
9	Other errors	5	Invalid or incomplete file information (1) Duplicate keys specified in COBOL program. The file has been successfully opened, but indexed database file created with unique key; or (2) Duplicate keys not specified in COBOL program, and indexed database file created allowing duplicate keys.
		9	Undefined (display or ICF).
		C	Acquire failed; session was not started.
		D	Record is locked CPF5027, CPF5032.
		G	Output exception to device or session.
		H	ACQUIRE operation failed. Resource owned by another program, or unavailable. (9H is the result when an ACQUIRE operation causes any of the OS/400 exceptions monitored for 90, or 9N to occur.)
		I	WRITE operation failed CPF4702, CPF4737, CPF5052, CPF5076.
		K	Invalid format-name; format not found. CPF5022, CPF5023, CPF5053, CPF5054, CPF5121, CPF5152, CPF5153, CPF5186, CPF5187.

Table 5. File Status Key Values (continued)

High Order Digit	Meaning	Low Order Digit	Meaning
9	Other errors	N	Temporary (potentially recoverable) hardware I-O error. (Error during communication session.) CPF4145, CPF4146, CPF4193, CPF4229, CPF4291, CPF4299, CPF4354, CPF4526, CPF4542, CPF4577, CPF4592, CPF4602, CPF4603, CPF4611, CPF4612, CPF4616, CPF4617, CPF4622, CPF4623, CPF4624, CPF4625, CPF4628, CPF4629, CPF4630, CPF4631, CPF4632, CPF4705, CPF5013, CPF5107, CPF5128, CPF5166, CPF5198, CPF5280, CPF5282, CPF5287, CPF5293, CPF5352, CPF5353, CPF5517, CPF5524, CPF5529, CPF5530, CPF5532, CPF5533.
		P	OPEN failed because file cannot be placed under commitment control CPF4293, CPF4326, CPF4327, CPF4328, CPF4329.
		Q	An OPEN statement for a randomly- or dynamically-accessed relative file failed because its size was *NOMAX. Change the file size (for example, using CHGPF) to the size you expect, and submit the program again.
		R	Referential integrity error. CPF502D, CPF502E, CPF503A.
		S	REWRITE or DELETE failed because last READ operation specified NO LOCK.
		T	Trigger program exception. CPF502B
		U	Cannot complete READ PRIOR because records are left in block from READ NEXT, or vice versa. CPF5184. Close the file, then open it again.
		W	Check constraint exception. CPF502F.
		X	OPEN failed because the file type is not supported in a multithreaded job. Change the file type to DATABASE, PRINTER (spool file only), or a DDM file of type *IP and submit the program again. CPF4380.
		Y	OPEN failed because the auxiliary storage pool (ASP) device where the file is located is not available. CPF980B.

File Status Key Values

Chapter 12. ILE COBOL Function-Name and Context-Sensitive Word List

The following sections list all of the context-sensitive words and function-names in ILE COBOL.

Visual Key

The following key identifies the function-names and context-sensitive words in the ILE COBOL language:

- Blank** An ILE COBOL function-name or context-sensitive word from Standard COBOL.
- (1) An ILE COBOL function-name or context-sensitive word that is an IBM extension to Standard COBOL.
- (2) A COBOL function-name from the 1985 (revised 1989) ANSI Standard that is not used by the ILE COBOL compiler.

Function-Names

Function-Name	Function-Name	Function-Name
ACOS	ADD-DURATION (1)	ANNUITY (2)
ASIN	ATAN	CHAR
CONVERT-DATE-TIME (1)	COS	CURRENT-DATE
DATE-OF-INTEGER	DATE-TO-YYYYMMDD (1)	DAY-OF-INTEGER
DAY-TO-YYYYDDD (1)	EXTRACT-DATE-TIME (1)	FACTORIAL (2)
FIND-DURATION (1)	INTEGER (2)	INTEGER-OF-DATE
INTEGER-OF-DAY	INTEGER-PART (2)	LENGTH
LOCALE-DATE (1)	LOCALE-TIME (1)	LOG
LOG10	LOWER-CASE	MAX
MEAN	MEDIAN	MIDRANGE
MIN	MOD (2)	NUMVAL
NUMVAL-C	ORD	ORD-MAX
ORD-MIN	PRESENT-VALUE	RANDOM (2)
RANGE	REM (2)	REVERSE
SIN	SQRT	STANDARD-DEVIATION
SUBTRACT-DURATION (1)	SUM	TAN
TEST-DATE-TIME (1)	UPPER-CASE	UTF8STRING (1)
VARIANCE	WHEN-COMPILED	YEAR-TO-YYYY (1)

Context-Sensitive Words

IBM Extension	
Context-Sensitive Word	Context
DAYS	MOVE FUNCTION ADD-DURATION(date-1 DAYS 90)
	(Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)

F-Name and Context-Sensitive Word List

Context-Sensitive Word	Context
DEFAULT	SET LOCALE LC_ALL FROM DEFAULT
HOURS	MOVE FUNCTION ADD-DURATION(time-1 HOURS 90) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
LC_ALL	SET LOCALE LC_ALL FROM DEFAULT
LC_COLLATE	SET LOCALE LC_COLLATE FROM DEFAULT
LC_CURRENCY	SET LOCALE LC_CURRENCY FROM DEFAULT
LC_MESSAGES	SET LOCALE LC_MESSAGES FROM DEFAULT
LC_MONETARY	SET LOCALE LC_MONETARY FROM DEFAULT
LC_NUMERIC	SET LOCALE LC_NUMERIC FROM DEFAULT
LC_TIME	SET LOCALE LC_TIME FROM DEFAULT
LC_TYPE	SET LOCALE LC_TYPE FROM DEFAULT
MICROSECONDS	MOVE FUNCTION ADD-DURATION(time-1 MICROSECONDS 30) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
MINUTES	MOVE FUNCTION ADD-DURATION(time-1 MINUTES 35) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
MONTHS	MOVE FUNCTION ADD-DURATION(date-1 MONTHS 12) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
SECONDS	MOVE FUNCTION ADD-DURATION(time-1 SECONDS 30) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
SYMBOL	CURRENCY IS "EUR" PICTURE SYMBOL "\$"
TIMESTAMP	05 date-1 FORMAT TIMESTAMP (Also found in SPECIAL-NAMES paragraph, intrinsic functions TEST-DATE-TIME and CONVERT-DATE-TIME.)
YEARS	MOVE FUNCTION ADD-DURATION(date-1 YEARS 2) (Also can be used in SUBTRACT-DURATION, FIND-DURATION, and EXTRACT-DATE-TIME.)
YYYYDDD	ACCEPT id-1 FROM DATE YYYYDDD
YYYYMMDD	ACCEPT id-1 FROM DATE YYYYMMDD
End of IBM Extension	

Chapter 13. ILE COBOL Reserved Word List

The following sections list all of the reserved words in ILE COBOL.

Visual Key

The following key identifies the reserved words in the ILE COBOL language:

Blank An ILE COBOL reserved word from Standard COBOL.

- (1) An ILE COBOL reserved word that is an IBM extension to the Standard COBOL.
- (2) A COBOL reserved word from Standard COBOL that is not used by the ILE COBOL compiler. These words should not be used if compatibility is important to an installation. If used, a diagnostic message will be issued.
- (3) A COBOL reserved word that is not in Standard COBOL and is not supported by the ILE COBOL compiler. If used, a diagnostic message will be issued.

Reserved Words

Reserved Word

ACCEPT
ACQUIRE (1)
ADDRESS (1)
AFTER
ALL
ALPHABETIC
ALPHABETIC-UPPER
ALPHANUMERIC-EDITED
ALTER
AND
ARE
AREAS
ASCENDING
AT
AUTHOR
AUTO-SKIP (1)
BACKGROUND-COLOR (1)
B-AND (3)
BEFORE
B-EXOR (3)
BIT (3)
BLANK
BLINK (1)
B-NOT (3)
B-OR (3)
BY
CANCEL
CF (2)
CHARACTER
CLASS

Reserved Word

ACCESS
ADD
ADVANCING
ALIAS (1)
ALPHABET
ALPHABETIC-LOWER
ALPHANUMERIC
ALSO
ALTERNATE
ANY (2)
AREA
ARITHMETIC (3)
ASSIGN
ATTRIBUTE (1)
AUTO (1)
AUTOMATIC (3)
BACKGROUND-COLOUR (1)
BEEP (1)
BELL (1)
BINARY
BITS (3)
B-LESS (3)
BLOCK
BOOLEAN (3)
BOTTOM
CALL
CD (2)
CH (2)
CHARACTERS
CLOCK-UNITS

ILE COBOL Reserved Word List

Reserved Word

CLOSE
CODE
COL (1)
COLUMN
COMMIT (1)
COMMON
COMP
COMP-1 (1)
COMP-3 (1)
COMP-5 (3)
COMP-7 (3)
COMP-9 (3)
COMPUTATIONAL-0 (3)
COMPUTATIONAL-2 (1)
COMPUTATIONAL-4 (1)
COMPUTATIONAL-6 (3)
COMPUTATIONAL-8 (3)
COMPUTE
CONNECT (3)
CONTAINED (3)
CONTENT
CONTROL
CONTROLS
COPY
CORRESPONDING
CRT (1)
CURRENCY
CURSOR (1)
DATE
DATE-WRITTEN
DAY-OF-WEEK
DB-ACCESS-CONTROL-KEY (3)
DB-EXCEPTION (3)
DB-RECORD-NAME (3)
DB-STATUS (3)
DBCS-EDITED (1)
DEBUG-CONTENTS
DEBUG-LINE
DEBUG-SUB-1
DEBUG-SUB-3
DECIMAL-POINT
DEFAULT (3)
DELIMITED
DEPENDING
DESCRIBED (1)
DETAIL (2)
DISCONNECT (3)
DISPLAY-1 (1)
DISPLAY-3 (3)
DISPLAY-5 (3)
DISPLAY-7 (3)
DISPLAY-9 (3)
DIVISION
DROP (1)

Reserved Word

COBOL (2)
CODE-SET
COLLATING
COMMA
COMMITMENT (1)
COMMUNICATION (2)
COMP-0 (3)
COMP-2 (1)
COMP-4 (1)
COMP-6 (3)
COMP-8 (3)
COMPUTATIONAL
COMPUTATIONAL-1 (1)
COMPUTATIONAL-3 (1)
COMPUTATIONAL-5 (3)
COMPUTATIONAL-7 (3)
COMPUTATIONAL-9 (3)
CONFIGURATION
CONSOLE (1)
CONTAINS
CONTINUE
CONTROL-AREA (1)
CONVERTING
CORR
COUNT
CRT-UNDER (1)
CURRENT (3)
DATA
DATE-COMPILED
DAY
DB (3)
DB-DATA-NAME (3)
DB-FORMAT-NAME (1)
DB-SET-NAME (3)
DBCS (1)
DE (2)
DEBUG-ITEM
DEBUG-NAME
DEBUG-SUB-2
DEBUGGING
DECLARATIVES
DELETE
DELIMITER
DESCENDING
DESTINATION (2)
DISABLE (2)
DISPLAY
DISPLAY-2 (3)
DISPLAY-4 (3)
DISPLAY-6 (3)
DISPLAY-8 (3)
DIVIDE
DOWN
DUPLICATE (3)

ILE COBOL Reserved Word List

Reserved Word

DUPLICATES
EBCDIC (1)
EJECT (1)
EMI (2)
EMPTY-CHECK (1)
END
END-ADD
END-COMPUTE
END-DISPLAY (1)
END-EVALUATE
END-INVOKE (1)
END-OF-PAGE
END-READ
END-RETURN
END-SEARCH
END-STRING
END-UNSTRING
ENTER
ENVIRONMENT
EQUAL
ERASE (3)
ESI (2)
EVERY
EXCEPTION
EXIT
EXTERNAL
FALSE
FETCH (3)
FILE-CONTROL
FILLER
FIND (3)
FIRST
FOR
FOREGROUND-COLOUR (1)
FREE (3)
FULL (1)
GENERATE
GIVING
GO
GREATER
HEADING (2)
HIGH-VALUE
I-O
ID (1)
IF
INDEX
INDEX-1 (3)
INDEX-3 (3)
INDEX-5 (3)
INDEX-7 (3)
INDEX-9 (3)
INDICATE
INDICATORS (1)
INITIALIZE

Reserved Word

DYNAMIC
EGI (2)
ELSE
EMPTY (3)
ENABLE (2)
END-ACCEPT (1)
END-CALL
END-DELETE
END-DIVIDE
END-IF
END-MULTIPLY
END-PERFORM
END-RECEIVE (2)
END-REWRITE
END-START
END-SUBTRACT
END-WRITE
ENTRY (1)
EOP
EQUALS (3)
ERROR
EVALUATE
EXCEEDS (3)
EXCLUSIVE (3)
EXTEND
EXTERNALLY-DESCRIBED-KEY (1)
FD
FILE
FILES (3)
FINAL (2)
FINISH (3)
FOOTING
FOREGROUND-COLOR (1)
FORMAT (1)
FROM
FUNCTION
GET (3)
GLOBAL
GOBACK (1)
GROUP (2)
HIGHLIGHT (1)
HIGH-VALUES
I-O-CONTROL
IDENTIFICATION
IN
INDEXED
INDEX-2 (3)
INDEX-4 (3)
INDEX-6 (3)
INDEX-8 (3)
INDIC (1)
INDICATOR (1)
INITIAL
INITIATE

ILE COBOL Reserved Word List

Reserved Word

INPUT
INSPECT
INTO
INVOKE (1)
JUST
KANJI (1)
KEY
LAST
LEADING
LEFT-JUSTIFY (1)
LENGTH-CHECK (1)
LIBRARY (1)
LIMIT (2)
LINAGE
LINE
LINES
LOCALE (1)
LOCAL-STORAGE (1)
LOW-VALUE
MEMBER (3)
MERGE
MODE
MODIFY (3)
MOVE
MULTIPLY
NATIONAL
NEGATIVE
NO
NONE (3)
NULL-KEY-MAP (1)
NULL (1)
NUMBER
NUMERIC-EDITED
OBJECT-COMPUTER
OF
OMITTED
ONLY (3)
OPTIONAL
ORDER
OTHER
OVERFLOW
PACKED-DECIMAL
PAGE
PERFORM
PH (2)
PLUS (2)
POINTER
POSITIVE
PRESENT (3)
PRIOR (1)
PROCEDURE-POINTER (1)
PROCEED
PROGRAM-ID
PROGRAM

Reserved Word

INPUT-OUTPUT
INSTALLATION
INVALID
IS
JUSTIFIED
KEEP (3)
LABEL
LD (3)
LEFT
LENGTH
LESS
LIKE (1)
LIMITS (2)
LINAGE-COUNTER
LINE-COUNTER (2)
LINKAGE
LOCALLY (3)
LOCK
LOW-VALUES
MEMORY
METAClass (1)
MODIFIED (1)
MODULES
MULTIPLE
MESSAGE (2)
NATIVE
NEXT
NO-ECHO (1)
NOT
NULL-MAP (1)
NULLS (1)
NUMERIC
OBJECT (1)
OCCURS
OFF
ON
OPEN
OR
ORGANIZATION
OUTPUT
OWNER (3)
PADDING
PAGE-COUNTER (2)
PF (2)
PICTURE
PIC
POSITION
PREFIX (1)
PRINTING
PROCEDURE
PROCEDURES
PROCESS (1)
PROMPT (1)
PROTECTED (3)

ILE COBOL Reserved Word List

Reserved Word

PURGE (2)
QUOTE
RANDOM
READ
REALM (3)
RECURSIVE (1)
RECORD
RECORDS
REEL
REFERENCE-MONITOR (3)
RELATION (3)
RELEASE
REMOVAL
REPEATED (3)
REPLACING
REPORTING (2)
REPOSITORY (1)
RERUN
RESET
RETRIEVAL (3)
RETURNING (1)
REVERSED
REWIND
RF (2)
RIGHT
ROLLBACK (1)
ROUNDED
SAME
SD
SECTION
SECURITY
SEGMENT-LIMIT
SEND (2)
SEPARATE
SEQUENTIAL
SHARED (3)
SIZE
SKIP2 (1)
SORT
SORT-RETURN (1)
SOURCE-COMPUTER
SPACE-FILL (1)
SPECIAL-NAMES
STANDARD-1
START
STATUS
STORE (3)
SUB-QUEUE-1 (2)
SUB-QUEUE-3 (2)
SUBFILE (1)
SUBTRACT
SUPPRESS
SYNC
SYSIN (1)

Reserved Word

QUEUE (2)
QUOTES
RD (2)
READY (3)
RECEIVE (2)
RECONNECT (3)
RECORD-NAME (3)
REDEFINES
REFERENCE
REFERENCES
RELATIVE
REMAINDER
RENAMES
REPLACE
REPORT (2)
REPORTS (2)
REQUIRED (1)
RESERVE
RETAINING (3)
RETURN
RETURN-CODE (1)
REVERSE-VIDEO (1)
REWRITE
RH (2)
RIGHT-JUSTIFY (1)
ROLLING (1)
RUN
SCREEN (1)
SEARCH
SECURE (1)
SEGMENT (2)
SELECT
SENTENCE
SEQUENCE
SET
SIGN
SKIP1 (1)
SKIP3 (1)
SORT-MERGE
SOURCE (2)
SPACE
SPACES
STANDARD
STANDARD-2
STARTING (1)
STOP
STRING
SUB-QUEUE-2 (2)
SUB-SCHEMA (3)
SUBSTITUTE (1)
SUM (2)
SYMBOLIC
SYNCHRONIZED
SYSOUT (1)

ILE COBOL Reserved Word List

Reserved Word

TABLE (2)
TAPE
TERMINAL
TEST
THAN
THROUGH
TIME
TITLE (1)
TOP
TRAILING-SIGN (1)
TRUE
TYPEDEF (1)
UNEQUAL (3)
UNSTRING
UP
UPON
USAGE-MODE (3)
USING
VALIDATE (3)
VALUES
VLR (1)
WHEN
WITH
WORDS
WRITE
ZEROES
ZEROS
<=
*
-
>
=

Reserved Word

TALLYING
TENANT (3)
TERMINATE (2)
TEXT (2)
THEN
THRU
TIMES
TO
TRAILING
TRANSACTION (1)
TYPE
UNDERLINE (1)
UNIT
UNTIL
UPDATE (1)
USAGE
USE
VALID (3)
VALUE
VARYING
WAIT (3)
WHEN-COMPILED (1)
WITHIN (3)
WORKING-STORAGE
ZERO
ZERO-FILL (1)
<
+
**
/
>=

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This summary is intended to help you write ILE COBOL programs. It contains information necessary for you to use the ILE COBOL compiler. This summary documents no programming interfaces for use in writing programs that request or receive the services of the ILE COBOL compiler.

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